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SPECIAL ARTICLE.

THE MEDICAL INSPECTION OF SCHOOLS: A PROBLEM IN PREVENTIVE MEDICINE.*

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AS PREVENTIVE medicine, when viewed in its broad, general sense, indicates not only the prevention of disease and its consequences to the individual, but of still greater import to the mass of people; so does the medical inspection of schools primarily concern itself with the individual and thereby occupies a deserving place in the efforts being made to eliminate disease and conserve health and also in a far reaching way, it embraces the betterment of the masses both in its hygienic and economic aspects.

Daily medical inspection of schools, and this especially is what is desired to emphasize here in contradistinction to occasional inspection, was successfully inaugurated in Boston in 1894 as the result of an unusual prevalence of diphtheria. The success obtained from this experience and the agitation that had been promulgated for several years previous, began to have its influence on the health and educational boards of other cities, with the result that various degrees of inspection of school children was authorized in New York City, Chicago, Orange (N. J.), Philadelphia, Newton and Brookline (Mass.), Jersey City, Asbury Park, Milwaukee, Minneapolis, Salt Lake City and Cleveland. In Boston when this measure against disease was first instituted, the city was divided into 50 school districts and an equal number of physicians were appointed so that each would visit daily a single district. But a few months after Boston had inaugurated this work, Brookline appointed six inspectors and four substitutes, while Newton appointed physicians for each district to examine the children in school or elsewhere in the event of suspected disease. Although agitation was vigorously continued in other places by those who realized the immense benefits to be derived by this phase of preventive medicine, no results were obtained until 1895 when Chicago was for this purpose divided into nine districts with one medical inspector assigned to each, thus giving each inspector about 30 schools. In New York City medical inspectors were first appointed for the public schools on March 16, 1897, and 134 physicians were selected to visit the schools daily, while in Philadelphia and elsewhere it was not until 1898 that further results were secured. It may also be mentioned here that while medical inspection is of comparatively recent date in this country, in Paris a form of inspection was carried out in 1833, while the laws of 1842 ordered that all public schools should be visited by a physician who, in addition to inspecting the buildings, should also inspect the general health of the school children. Since then the system has several times been reorganized in order to improve its efficiency and has been of such value that it has been used as a model for similar hygienic work in all other French cities. While owing to its unqualified success, the school law of 1886 and the ministerial decrees and orders of 1887, have made medical and sanitary inspection obligatory for all the schools both public and private.

Before entering more fully into the details of medical inspection of schools, a clearer comprehension of what is being done in the various municipalities at present having this system in part or whole, will enable one to obtain a better view of the question as it at present stands. In Brookline the school department cooperates with the Board of Health and all the public schools are inspected daily or less frequently, depending upon the amount of disease present. During varying intervals when the town is entirely free from contagious diseases, the inspection may be temporarily suspended, but such a system while having its pecuniary advantages in a small town when contagious diseases may be entirely in abeyance at irregular intervals, cannot be of much value in a large center of population where diphtheria, scarlet fever, etc., are always present to a greater or lesser extent. The inspection in practically all of the places where it is carried out by a number of inspectors, is made during the early school hours preferably between 9 and 10 A.M. and the teacher in charge of each room refers the pupils who present symptoms of illness to the inspector, who occupies a separate room where the children are examined and a diagnosis is made. In case of contagious disease being discovered the child is immediately sent home with an explanatory card advising the parents to call in their family physician, while in non-contagious diseases depending upon their nature the teacher is directed to retain the child in the class and to later advise the parents that the child requires medical attention, or in event of the child being too ill to remain, it is sent home with a card to that effect. Depending upon the distance between the schools an inspector may have one or several to visit daily, this of course differing dependent upon the local conditions in various cities. In Minneapolis the system is a volunteer one and has been in operation for less than a year, but it has been very satisfactory and the inspectors make a weekly report to the chief inspector, who in turn issues a monthly report. In ordinary cases the pupil is sent home with a blank which states to the parents

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that the child appears to be ill, while in contagious diseases a special postal in addition giving the name, address, diagnosis, etc., is mailed to the Department of Health, thus placing the child under early quarantine, which, without the detection of the disease by the school inspector, would not have been the case and in many instances preventing the infection of other pupils. In Newton where daily inspection is being seriously contemplated, the pupils are examined as regards the presence of illness only at the beginning of school after a vacation, but this of course has little value and while it may succeed in detecting some cases of illness that appear at school at such times, it in no way fulfils any practical service towards the prevention of contagious diseases.

In Philadelphia daily inspection is under the administration of the Board of Education, 200 volunteer inspectors visiting the schools daily before 10 A.M., and as a result of the first year's volunteer work, over 5,000 pupils requiring medical attention were found and referred to their family physicians. The usual system of ordinary and special diagnosis cards are used and the principal of the school to whom the children with any ailment are referred, fills out a blank for the child to take to its parents from the diagnosis card furnished him by the inspector. The Educational Board observes the laws of the Board of Health in regard to dangerous, contagious or infectious diseases such as cholera, smallpox, diphtheria, diphtheritic croup, membraneous croup, scarlet fever, typhoid fever, typhus fever, yellow fever, epidemic cerebro-spinal fever, etc., and in such cases a special card is furnished which is immediately mailed to the health authorities, while the child is sent home at once. While in cases where whooping-cough, measles, chicken pox, skin diseases, mumps or other ailments which are not mentioned in the "dangerous" list are found present, the ordinary diagnosis card is filled out and the principal of the school is notified that the child cannot return until a physician certifies a cure. At the end of each month the head of the school sends a report of the diagnosis cards to the Board of Education with the name of the pupil, residence, age and diagnosis placed upon it. The system in Philadelphia, if properly carried out, as in New York, Boston and a few other places, would do much toward reducing the prevalence of contagious diseases, but for want of appropriations the inspectors after two years' work with no leader nor compensation, have gradually dropped their appointments until at present not more than 10 per cent. are visiting the schools and the present status of daily medical inspection in this city is one of masterly inactivity.

Boston and New York City at present undoubtedly lead in the care exercised by these respective municipalities over the health of the school children. The former city has probably the best system in use to-day and with an efficient corps of some 50 inspectors, material results are being obtained in this field of preventive medicine. This is well shown in the work accomplished in 1900, when of 15,573 pupils examined in the schools, 3,055 were sent home for various diseases and many physical defects were by this means eradicated which had otherwise retarded the work of the individual and had seriously impeded their full mental and physical development. The inspectors are also authorized agents of the Board of Health and in addition to visiting the public schools daily to examine all sick pupils and to advise the teacher concerning them, they also decide questions concerning the attendance of such children as live within the same building in which there is a case of contagious disease and in addition they visit every case of diphtheria, membraneous croup and scarlet fever reported, to ascertain the effectiveness of the isolation. In New York City the division of medical inspection is also under the Sanitary Bureau of the Department of Health, with an efficient corps of about 250 inspectors and daily reports are made to the Chief Inspector who in turn presents a detailed weekly report to the assistant Sanitary Superintendant. Not only are the public schools subjected to the daily examination of the pupils, but so also are the parochial, tenement schools and various societies where children are daily grouped together. The blanks used to report contagious or non-contagious diseases do not differ in any essential respect from those previously mentioned, but in suspicious cases cultures are taken and in all cases where the throat is examined, individual wooden tongue depressors are used which are then destroyed; a matter apparently trifling in itself, but one of much import in preventing the transmissions of diphtheria or more rarely syphilis.

At Asbury Park the medical inspector visits the school each day at 10 A.M. and ascertains the nature of the illness present in such pupils as have been referred to him by the teachers, each child bearing a blank from the teacher containing in addition to its name, age, etc., the query as to the presence of sickness at home and the symptoms noted by the teacher which have directed her attention to the indisposition of the pupil. If the illness be of sufficient import, the child is sent home with a blank stating that it is ill and should be placed under the care of the family physician and later when he returns to school, a physician's certificate showing that recovery has occurred should be furnished. In addition to this a valuable record is kept of the individual, showing his name, age, class, weight, height, general condition, chest measurements, spine, cutaneous diseases, heart, lungs, nose, throat, teeth, eyes and ears; this is placed in an index so that the physical condition of the pupil can be readily ascertained in a few moments. Jersey City is divided into districts and each physician visits the schools in his assigned district twice a week, the sanitary condition is noted in addition to the detection of any apparent illness among the scholars and a postal report is made to the health board. Of course as regards the pupils this is but a partial

inspection and to a slight degree only fulfils the conditions aimed at in the daily observation of the school children. Somewhat similar has been the work in Cleveland but the object here seems to be aimed along general lines of school hygiene as regards the physical surroundings of the pupils and is not essentially concerned with what is presented in this paper.

Wherever a school house is located, a field is at hand for the practice of medical inspection and as the subject is one of no limited extent, but as broad and as far reaching as the existence of disease, so must every individual professional or layman, have some interest ultimately in anything which will aid in preventing the sickness of the child or in avoiding its contact with another having a communicable disease. According to the last census there are in the United States 26,110,788 persons of school age, that is between five and twenty years and while the various States have a multiplicity of laws regarding the so-called school age, yet 21,573,492 of these individuals are between the ages of five and seventeen years. Not all of these however go to school and all do not therefore enter into this phase of the question, but according to Kober there were in the common schools for the year ending June 30, 1900, 15,341,220 children, surely a sufficient number to cause some concern to be taken in regard to their physical condition. Yet as an actual fact, but an infinitesimal number of these 15,000,000 individuals, who spend the greater part of their time in school, receive municipal or State recognition for the demand of their physical condition, either to maintain their normal health or to prevent the dissemination of disease, as a routine measure but only are efforts made in the face of endemics or epidemics. The acute infectious diseases as diphtheria and scarlet fever, are especially prominent during the years at which the child spends the greater part of its time in school, while other communicable diseases as whooping-cough, measles and contagious skin diseases also occupy a similar relation in regard to their usual appearance during childhood or adolescence. While the school can hardly be accused of being in itself the cause of any of these diseases, yet no one can deny that it is a patent factor in their propagation and undoubtedly under many conditions found in the schools a train of physical ills are consequent that seem to be the price the child must pay for its education. It has been well said that "the object of the public schools is to train to good citizenship," yet one must doubt very much if the defective or the adult with the sequelæ of diphtheria or scarlet fever contracted from his schoolmate in boyhood, can do the work he is capable of when partially disabled by ill health, defective sight or impaired hearing, yet thousands of children are at school often under State laws compelling them to be there, trying to prepare for their future under physical impairments that their parents, were they in like position, would consider insurmountable.

The health of school children is a wide and complex problem, because all children during certain ages are at one time or another in school. It has only been recognized within recent years that the State owes more to the child, more to itself, than a mental education to a greater or lesser degree. Even now this is not fully recognized and in the majority of public schools under existing systems where no attention is paid to the pupils individual physical welfare, nor any attempt is made to recognize the presence of disease which careless parents neglect to observe at home, many hundreds, even thousands of lives are sacrificed annually and numerous others bear the scars of the educational fray till their life-work is over. A. K. Whitcomb states this succinctly when he says a phase of the subject which has been attracting widespread attention in recent years, has been the study of children physically defective. Tests in this country and Europe have shown a startling prevalence of defects which have been unsuspected by either child or parent. School children are of a susceptible age not only as regards their liability to contract contagious diseases, but to a marked extent to structural deviations from the normal, so common during this the formative stage. This is especially marked in girls and notably so in the high schools, a recent series of papers by Lovett and others showing this clearly, and the conclusions that girls are not as well on the average when they leave school as when they enter, seems to be borne out by actual facts. I am sure no one can go into a public school and not find at least one and often more scholars requiring medical attention. Spratling in a class of 40 pupils in Springfield (Mass.), found two consumptives, an epileptic, three with inherited syphilis, a typical moral degenerate and many suffering from defects of the teeth, tonsils and ears. It has been estimated that 11 per cent. of the public school children are unfitted to enter into competition with their healthy fellows and as these require education the same as the non-defective, medical inspection provides a means by which this large number may be materially reduced.

While but comparatively desultory investigations have been made in this country of the health of school children, yet considerable scientific work along this line has been done abroad. It is impracticable here to give details from foreign investigators of the influence of school life upon the health of the children, but it is desired to mention certain facts which have a practical bearing upon elucidating the value of competent medical inspection as but one of several hygienic measures directed towards increasing the mental and physical efficiency of the school child. In all 104,629 school children were investigated by various observers and it was found that there was a surprising amount of ill health especially among girls. Eliminating accidental or acute illness and myopia, the morbidity varied from 20 to 61.7 per cent., the latter in Stockholm among girls. While the morbidity of school children has been fairly well ascertained the question of mortality presents

an entirely different aspect and practically embraces the mortality of youth in general, which of course cannot be applied to the results of school life upon the child. From careful studies made however by Chalmers of Glasgow, a great improvement has been effected in the health of school children during the past twenty years. The decrease in the death-rate of individuals from five to fifteen years of age amounting to about 38 per cent. in the time specified; which is equivalent in Scotland to an annual saving of 2,696 lives out of every million of school age. The result of the adoption of hygienic measures especially as regards medical inspection, is also shown by its effect upon the reduction of the mortality, for as a result of this inspection in Chicago, the mortality of diphtheria for the months of September and October, 1900, had been materially reduced, there being 42 and 77 deaths respectively for this year, while for the two similar months for a number of years the mortality was 85 and 127 respectively. While the report of the Massachusetts State Board of Health for 1896, shows that there were 72 fewer deaths from diphtheria than in 1895, although the number of cases reported was largely increased on account of the large number discovered among the pupils in the public schools by the medical inspectors and the bacteriological tests in the otherwise unrecognizable cases. The ratio of deaths to the number of cases reported was 11.48 as against 14.48 per cent. the preceding year. As before mentioned little scientific investigation has been done in this country to ascertain such relations to the health of the pupil, but in Sweden it was found that the morbidity was 5.3 per cent. higher in those who worked over the average time and in Denmark it was 7 per cent.

While the majority of communicable diseases incident to child life occur in the public schools as the result of bringing a number of individuals into daily, close contact for several hours at a time, yet there are a number of diseases which seem in their development to bear a close relationship to school attendance and which therefore may be grouped under the title of school diseases, or preferably diseases incident to school life. These may be grouped as those of the special senses especially refractive errors and to a much less extent various affections of the ears. Many cases of curvature of the spine are also assignable to this cause and nervous affections are common especially headache, insomnia, minor grades of chorea, etc. Affections especially of the upper respiratory tract undoubtedly have a near relationship to school attendance, while general infectious diseases, parasitic diseases and contagious diseases of the skin and eyes have in some repects a close affiliation. Neurasthenia or various nervous disorders are especially common among school children and near the close of each term of school, it is the experience of almost every practitioner to see a number of cases especially in girls of the higher grades, where physical breakdown is the result of the close mental application during the school term. Practically school diseases embrace all diseases to which children are heir, but two classes are especially applicable to the subject as considered here, the first being those affections which are the result of the school work or which are aggravated under these conditions, while the second class which has of late attracted the most attention, are the communicable diseases which may or may not be of a dangerous character. No one can doubt the deleterious effect produced by ill-health upon the capacity of the pupil for study and numerous instances might be related to show the failures made not only while the child was at school but even extending into later life, by unrecognized physical defects which could be repaired in time making a useful child instead of one only partially so, if some attention had been paid to his physical condition as is done in those schools where medical inspection is part of the daily procedure. A. K. Whitcomb gives a striking example of this in a boy of five, who attended school a half year without learning a single letter, finally after this time had been wasted it was found that he was so astigmatic that it was impossible for him to see a letter, while remedy of the defect showed him to be as competent as the other children.

As "the aim of an education must ever be the development of the fullest and soundest mental, moral and physical life of which the particular individual is capable," the question of ascertaining and caring for those not able to come up to the normal must also be seriously considered. Again the medical inspector may be of value in directing attention to those who are nervous, delicate or defective to a greater degree than will allow them to remain in a large class with the other pupils and the results of segregating this class of individuals small though it may be, are most encouraging. To a limited extent this has already been done in Philadelphia and as a result the school for backward children has developed, which has been of great value in educating these individuals who have heretofore remained in statu quo in the regular public school. Medical inspection has already in the few years of its existence done much for this small but constantly increasing group of unfortunates, to whom the state owes an education but who are individually incapable of receiving it when placed in close competition with the normal child. The question of handling these defectives is a serious and a large one and except for their detection in the school and recommendation to their parents and teachers as to what should be done for them, bears no close relation to medical inspection per se.

In order to more clearly establish the cogent reasons for the wider recognition of medical inspection, one has to consider as but one of many reasons advanced, the effect of disease upon the future career; while of course medical inspection will not abolish disease among school children, yet it certainly will materially reduce the prevalence of the so-called school diseases and also reduce to a minimum the dangers of contracting conta-

gious diseases. Physical defects among the pupils of the public schools are strikingly common, so much so, that this may well be made a dogmatic statement. In Newark during the first five months of inspection out of 5,585 children examined, 1,706 were excluded from school, the great majority on account of communicable diseases. In 10 months in Philadelphia 3,446 contagious and 2,430 non-contagious affections were observed, while Boston inspectors found in one year 4,023 cases of contagious and infectious diseases and for the year 1900 out of 15,573 school children examined, but 4,952 were found free from disease. Surely a remarkable showing, but one which can be found from time to time in the majority of schools in the larger cities.

While it is not possible to entirely eliminate all disease from the school, yet the mitigation, cure or better still the prevention of many of these physical defects is entirely within our reach. The defects all have a remedy and if the medical inspection of schools had its value fully impressed upon those in authority, more substantial gains would be made in the near future than have been made in the past in the dozen or so towns where this has been in more or less effective force. Regular and daily systematic medical examination by the physician is a demand made by the modern recognition of preventive medicine and its full significance is becoming more widely appreciated as its results become more apparent. Medical inspection means that the pupil and not only the educational system is being considered and its objects embrace a two fold measure, first, to reveal and correct insanitary conditions existing in the school which may act as predisposing or exciting causes of disease, and secondly, its functions are to detect disease and especially those of a contagious or infectious character. That the experience of those familiar with this subject has been unanimous in extoling its value not only in improving the hygienic surroundings of the school child, but in detecting many diseases which had otherwise remained undetected and especially in locating early cases of diphtheria, etc., certainly implies that it deserves the greatest attention. The value of inspection shows itself along numerous lines affecting the condition not only of the child but also the teacher, the parents and the community at large. It has proven to be an important factor in the education of children and especially their parents in matters relating to personal and home hygiene and it has directed the attention of health and school boards to improvements and reforms which before had not attracted attention. As stated by Kober it has proven of inestimable value and while figures show but a part of what has been done, yet the following give some idea of the prevalence of disease in the schools, which previous to medical inspection was entirely neglected or detected only after the illness was so marked that it was apparent to the parents.

In Boston, from November 1, 1894, to October 31, 1896, out of 23,207 pupils examined there were 6,571 cases of disease and of these, 5,818 were too ill to be in school. The total school population at that time being 83,303. In three months in New York 4,183 children were excluded from school on account of contagious diseases, out of 63,812 examined. During a period of four months in Chicago 233 public schools were visited by the inspectors with the result of finding 1,417 cases of diphtheria and 306 of scarlet fever, while at a later period in the same city out of a school population of 200,000, 76,805 were examined and 4,539 were found to be suffering from contagious diseases, necessitating their exclusion from school. Noticeable among the results obtained in those schools where medical inspection has been enforced, is the improvement in cleanliness of the children and it has been especially noticed that the parents are more apt to keep ill children at home where previously they were sent to school, thus giving earlier attention to the sick child and at the same time in case of contagious disease a greater degree of security is afforded to those children who are at school.

In order to have a successful system of medical inspection and to obtain the best results, organization is essential. While good results have been obtained where the inspectors are under the direct control of the board of education, yet the inspectors under such circumstances do not have the full legal control over some of the problems that are constantly presenting themselves and in order to insure the best results both for the children and the community at large, the inspectors should be banded together as a definite organization under the board of health. In other words the inspectors in case of contagious and infectious diseases should act as agents of the health board, with all the power of that board behind them, while in the case of other affections they can have but the power to recommend that the child requires treatment and if necessary should not be allowed to remain at school until it has had such treatment. If the system of inspection is contemplated in a small town one or two inspectors will be fully able to cover the field, while in a large city a number are required depending upon the number of schools, of scholars and the relative distance between the school buildings. In Salt Lake City and Cleveland a single inspector performs the duties, but this hardly embraces medical inspection to anything like a complete degree and in these cities more attention is paid to school hygiene and the examination of the eyes and ears of the scholars, while in Philadelphia under an incomplete system 200 physicians visited the schools daily. The number of inspectors in other places varying with the number of schools and the thoroughness with which the authorities desired the work to be carried out, New York having 250 inspectors; Boston about 50, Milwaukee 12 and Newark 12, while in the few other cities where inspection is carried out, the number varies considerably. In organizing a system of inspection, it is essential that there should be a Chief Inspector who should possess both the qualifications

of physician and sanitarian and who also should act as an official of the health board. The inspectors should form an organization having for its objects the promotion of an esprit de corps; the discussion of subjects relating to the inspection of schools and the various measures to be employed in eliminating disease and insanitary conditions therefrom. Such an organization in Philadelphia was productive of an immense amount of good and the inspectors composing it published a report of the work done for a certain period of time in which it did much towards instructing the school authorities and the general public of the value of inspection. In Boston also, an inspectors' association has been formed and is presided over by the chairman of the Board of Health, while in addition to the subjects discussed as mentioned above, addresses by specialists are given from time to time on diseases of the eye, ear, nose, throat, etc.

The duties of the inspector commence with the time of his daily visit to the school; usually he is expected to make his morning visit between 9 and 10, thus giving the teacher time to note those who appear to be ill and have them ready for the medical examination when the inspector arrives. A partial or complete diagnosis if possible may be made of the various cases, but unless the disease is clearly of an infectious or contagious character, it is usually advisable to send the child home with the advice to the parents that it requires medical attention. In case the disease is infectious or contagious, the child should be sent home immediately; in case of doubt (diphtheria) a culture should be taken and in addition to notifying the parents, the proper health officers should also be advised promptly, either by postal as seems to be the method mostly in use or better by telephone. Under such circumstances if several cases are found he should visit the several class rooms in the school building, paying special attention to the one from which the suspected case or cases originated and examine every pupil, making cultures from those who present any evidences of sore throat. From time to time tests should be made for defects in sight or hearing and careful attention should be paid to pupils who present any evidences of ill health chronic or otherwise, or who by mouth breathing suggest nasopharyngeal trouble. Once a year at least, the inspector should examine all children irrespective of a physician's certificate, as to the presence or absence of a well-marked vaccination cicatrix, but under no circumstances should he suggest any treatment or in any way interfere with the family physician. Under the volunteer system which is usually first adopted as a trial measure, the inspectors can hardly be expected to perform more duties in the school than those mentioned, but when the inspectors are paid and act as agents of the board of health as should be the case, they should also visit the class room daily and inspect the surroundings as related to temperature, desks, toilet rooms, etc., and exercise in general a sanitary supervision over the school in all ways that relate to the health of the pupils. The inspector then recommending to the chief inspector the removal of such defects that may be found prejudicial. Acting as an agent of the board of health he should also visit cases of contagious diseases when the family physician reports their recovery and should raise the quarantine and furnish the permit to return to school, this of course being limited to contagious diseases, as he has no control over other diseases outside of the school. In addition to notifying at once the health authorities, the teacher and the parents of the presence of a contagious disease, he should also send to the chief inspector a daily report of all children excluded from school and a weekly report including a complete list of the pupils examined and of those presenting any evidence of disease.

Necessarily only the general principles involved in the duties of the inspectors can be mentioned here and in each city or town these must vary in detail to suit the conditions present. In New York for instance, the diagnosis of measles of scarlet fever made by the school inspector must be confirmed at the home of the child within 24 hours by one of the diagnosticians of the Board of Health; while in Boston the inspectors visit at least twice, every case of infectious disease in their district; decide when isolation may cease and for disinfecting the premises. In Chicago daily reports are made of all cases examined and excluded, both to the Superintendent of Compulsory Education who has control of the system of inspection and to the Commissioner of Health; while in emergencies as outbreaks of diphtheria, scarlet fever, smallpox, etc., the report is made immediately over the telephone. As the inspection has been made here with reference to transmissible diseases only, the pupils are referred to the inspector by the school principal for two causes, first, those with suspected contagious diseases and secondly, those who have been absent for four or more consecutive days. Children with severe attacks of tonsillitis are also excluded until culture shows a negative diagnosis and a very wise measure is in force requiring aseptic methods of examination to be employed.

The chief inspector who should undoubtedly be an official of the health board and also act in harmony with the educational board, should exercise a general supervision over the medical inspectors, should receive and file daily weekly or monthly reports from the inspectors and should report to the educational board with his recommendations, cases of various diseases and instances of faulty hygiene which come under his attention. In addition he must take an active part as a health officer in enforcing quarantine laws in contagious diseases and should in general exercise such functions as are common to the position of health officer with in addition, special authority as relating to the hygiene of the school and its diseases.

Where for erroneous arguments and lack of fiscal appropriations daily inspection is apparently not feasible, the inspections may be made bi-

weekly or weekly as is done in Jersey City, or as in Salt Lake City where they have but a single inspector who investigates contagious diseases after they have been reported. Of course it is impossible for one man to exercise medical supervision over a large number of schools, but even by this method in lieu of a better, much good can be accomplished in detecting eye and ear defects and improving the general sanitary surroundings of the pupils. Again medical inspection of the schools may be made only at the beginning of each school term or session of school after a vacation, but this bears no relation to the results obtained by daily inspection and enables the inspector to detect ills that may be present at intervals too infrequent to be of value in combating communicable diseases. The results shown by irregular inspection in contradistinction to daily inspection, have been utilized and are of value in organizing preliminary investigations to determine whether a given place required daily inspection or not. One or more volunteers if possible depending upon the number of school children, will be usually sufficient to demonstrate the value of inspection and will be a great aid in paving the way for a permanent system. Such preliminary investigations as conducted in Chicago by nine inspectors of the health department for more or less regular periods of the school year and based upon physicians' notifications, located 4,023 cases of contagious and infectious diseases; 47,310 vaccinations or revaccinations were secured; an epidemic of impetigo contagiosa involving seven schools was arrested in a few weeks after excluding 107 cases and a vast number of ills and sanitary errors were detected by this small force, that immediately paved the way for the necessity of inspection as a definite part of the sanitary system of the city. Similar preliminary investigations were also made in New York and it was found on examining the list of children absent from school that many cases of diphtheria passed unnoticed, while such was also the case in scarlet fever though to a less degree. So convincing was the evidence accumulated especially in regard to early detection of contagious diseases and the suppression of incipient epidemics, that a chief inspector and a staff of 150 later increased to 250, were appointed as a necessary sanitary measure.

An important factor and one which while not especially concerned with contagious diseases but which is of much import to the individual, is the necessity for medical examination of the child on its first entrance to school. This does not imply that no future examinations should be made after the first at usually an early age, but the pupil should yearly be investigated in regard to the special senses and for any physical ailments that may be observed by the teacher from time to time. With such a basis as the first examination of which a record is preserved and added to from time to time as the child progresses in his school work, a decided advance will be made in preventive medicine. Usually the educational system determines the standing of a child by his mental powers alone, but such a method is in no wise fair to the individual or the state, as children bright mentally but with undiscovered physical defects make their way rapidly through the prescribed course, some to break down when partially through, while others complete their studies at the expense of their physical welfare and either require a long time to recuperate or always bear the result of their education as physical ills. Medical inspection has done much in a limited field to negative these harmful results and as its field broadens it will do much more, while if carried out so that special examinations are also made of new pupils, much will be done toward having the system fit the child and not the reverse as is commonly the case.

While nearly all the diseases common to childhood have been found in the schools by the investigator, yet any accurate statistics as to the proportion of ill school children to those healthy, seems to be unobtainable. Various estimates have been made from time to time but they are usually based upon observations made in foreign schools and relate more to defects of the special senses with trivial nervous disorders, with little regard to the important group of communicable diseases and therefore have but little value if applied to school diseases in this country. From medical examinations made in various American cities, it seems to me that a fair and safe estimate of morbidity in children at school and not children sick at home whose names are on the school list, would be about 10 per cent. Probably 11 per cent. are in school suffering from some physical defect or illness interfering with their work, while nine per cent. will be found not too high for those who are too ill to study and require medical treatment. Scattered reports obtained now and then from the cities where medical inspection exists would also seem to bear out the accuracy of these figures, while as bearing out this point the following figures are suggestive; 30,045 children were examined in Cleveland in 1899-1900 and 6,221 or 20.7 per cent. were found to have defective vision, while in a single school 23.5 per cent. of the pupils had defects of the special senses and the inspector of Malden found 200 pupils requiring medical attention out of 528 examined. The reports obtained at Boston are instructive in this connection as in one year 1,156 were found too ill to remain at school, out of 8,964 examined. In one week in New York, 195 cases of communicable diseases were found, another week 7,398 were examined and 364 were excluded, while for still another week out of 4,598 examined, 243 were too ill to remain at school and in the first three months of the inspection during which 63,812 pupils were investigated, it was found that six per cent. had to be excluded for contagious diseases. In Minneapolis out of 25,696 pupils examined 8,166 or 32 per cent. had defective eye sight; nine months examination in Philadelphia showed the presence of 5,876 cases of disease in the schools, of which 3,446 were contagious. Surely these figures imply that we do

not have to go far to find foci of contagion when an active field is found in every school, without at all taking into consideration the large number of school children who have diseases not transmissible.

Probably the chief value of medical inspection is the immense service that it has rendered in checking the spread of contagious diseases and therefore preventing epidemics or endemics. It certainly stands to reason that there is much less danger of a child contracting diphtheria, scarlet fever or measles for instance if another child with any of these affections in close contact with it in school is immediately removed at the beginning of the morning session, instead of remaining for the better part of the day. Without medical inspection in some form, such a condition has in the past and must in the future inevitably exist until the ill child becomes so sick that attention is of necessity directed to it. With inspection, this most common method of transmitting diseases becomes to a great degree obsolete and an advance will necessarily be made in preventing epidemics of such diseases as are common to the school age. I believe we have no better single factor in preventive medicine both in its fullest sense in preventing disease and also in the early detection of a large and serious group of affections, than the adoption of this measure. It is a matter of daily occurrence to have a school closed here or there on account of an endemic of diphtheria, etc., yet the detection of the first case which is usually in school, or whose brothers or sisters have attended school during the early stage or as does happen, during the better part of the course of the disease, is but necessary and the dangers are reduced to a minimum or entirely removed. In New York a marked check has been noted from time to time upon the spread of contagious diseases, while a committee of Philadelphia inspectors as a result of a year's daily experience in the schools, felt warranted in stating that epidemics have been averted by the early detection and exclusion of many of the cases and that large numbers of children have been saved from unnecessary illness by detaining from school the sick, the uncleanly and the vermin ridden. Arnold has probably demonstrated the value of medical inspection most clearly in its relation to epidemics, where in a class of 40 pupils, 14 were affected by diphtheria and four children in the families of these were also affected. As soon as the epidemic was recognized four suspicious cases were sent home and recommended to the care of the family physician, while every throat in the entire class was examined and a culture taken in all suspicious cases. The usual precautions were observed in the class room as regarded disinfection, etc., and for a week and a half the throats of all the children present were examined every morning, no pupil with suspicious symptoms being allowed to return until the culture showed a negative report. Notwithstanding that the epidemic had progressed to such a degree before it was discovered, as a result of these measures no further cases were infected. The same author also reports a similar epidemic of scarlet fever in which the value of medical inspection was amply demonstrated, while the president of the Board of Education of Chicago in his annual report for 1901, states that the schools were saved from an invasion of smallpox by the vigilance of the medical inspectors, etc., and that since its introduction its efficacy has been apparent from the large number of contagious diseases which have been detected and excluded.

The triple question does medical inspection act as a check upon the spread of contagious diseases? Does it protect against epidemics arising among school children? Does it prevent the infection of others? can be answered in the affirmative by the statement made in the report just quoted, that in one year 5,217 cases of contagious diseases were detected and excluded. In other words, in but one city—Chicago—5,217 cases of epidemics were detected and rendered ineffectual for harm. The Commissioner of Health of Milwaukee states that it is hardly possible to estimate the amount of good that has been accomplished in eliminating cases that were in an infectious stage and thus placing them in quarantine and under proper medical supervision. As an aid in discovering the source of an endemic, or epidemic of these diseases, this system presents somewhat unique features, as the cases are discovered much earlier than they have been without it and by tabulating the cases found it can be seen in what locality they are most numerous, thus following the disease to its original source. Indirectly the inspection of schools has had a most curious and yet salutary effect in showing to the public the necessity for isolation in contagious diseases. This has been noted in various places but in Salt Lake City previous to the partial inspection in force, it was common for the household to scatter between the time of making the diagnosis and the establishment of quarantine, thus increasing the dangers of the spread of the infection. Since, however, this work has been carried on in the schools, the Commissioner of Health has stated that there has been a marked improvement in this respect as in the voluntary reporting of mild cases of contagious diseases. Wherever a number of children are brought into close contact the dangers of dissemination of various diseases must be materially increased and as this is true upon all occasions, it is necessarily so in regard to schools. Efforts are being made of which this is one, to lessen the size of the class and this will of course lessen to that extent these dangers, but notwithstanding this and even granting a model hygienic place of meeting, yet the children come from without and while under such ideal conditions the dangers of contagion are greatly lessened, there remains the fact that as long as contagious disease exists the school must remain an important factor in its dissemination. Medical inspection here finds its especial field not so much in this aspect of being able to keep the surroundings such that disease is kept

out of the school, but by detecting and removing individuals with communicable diseases which act as a focus of infection by bringing the disease from the home or street. Another factor which determines the dissemination of communicable diseases, is the necessity of bringing the pupils into close contact within a comparatively small space. This is especially so in the kindergartens and lower grades where the children play certain educational games together and are in many ways through this influence, more likely to acquire contagious diseases than are those in the higher grades. The same thought may also be applied to the fact that the school child is of a susceptible age in regard to contagious diseases, the tendency being greater to contract these affections during this time than at other periods, so that while these factors in themselves cannot be changed even by the most ardent disciple of preventive medicine, yet the dangers of increased susceptibility under such conditions can be reduced to a minimum by the measures which are here advocated.

(To be Continued.)

ORIGINAL ARTICLES.

THE ETIOLOGY, PATHOLOGY AND SYMPTOMATOLOGY OF ACUTE SUPPURATION OF THE MIDDLE EAR.*

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AN acute middle-ear suppuration is invariably caused by the introduction of some pathogenic germ into the tympanic cavity. This germ gains entrance either through the external auditory meatus, there being a solution of continuity in the drum membrane, or through the Eustachian tube, the drum membrane remaining intact. In addition to the introduction of the pathogenic germ, certain conditions of the middle ear must be present which render this region a favorable site for the development of the pathogenic germ introduced. In other words, the diseased organism which gains entrance to the middle ear is the exciting cause of the inflammation. The changes which make the middle ear a favorable nidus for the development of this germ, constitute the predisposing causes of such an inflammation.

Turning now, to the predisposing causes of an acute middle-ear suppuration, we would cite, in the first instance, any condition which conduces to a chronic congestion of the upper air tract and of the tympanum. These two regions are so intimately related anatomically, that a venous hyperemia in the one cannot fail to produce a corresponding condition in the other. Such a predisposing condition then exists whenever we have an obstruction to nasal respiration such as is caused by a chronic hypertrophic rhinitis, an acute rhinitis, an acute inflammation of the nasopharyngeal space, or an hypertrophy of the lymphatic tissue situated in this region, constituting the condition commonly known as adenoid vegetations, or enlargement of the pharyngeal tonsil. These may be considered as the local predisposing causes. The general predisposing cause which, without any lesion of the upper air tract may render the middle ear exceedingly susceptible to infection, may be any constitutional condition which lowers the vitality of the entire system. Among the chronic diseases, we may mention chronic cardiac disease, chronic nephritis, anemia, either simple or pernicious, diabetes, and so forth. Among the acute diseases, we may have pneumonia, diphtheria, and the exanthemata; all of these conditions, tending to lower the general nerve vascular tone of the body, render all regions more susceptible to any infection, and the middle ear does not escape this general predisposition.

Next we come to the direct or exciting cause of the inflammation, that is, the means by which the pathogenic bacteria are introduced into the tympanum. The most simple avenue of introduction, and at the same time perhaps one of the most unusual, is through the external auditory meatus. This etiological factor is operative in those cases of acute middle-ear suppuration which follow any perforating wound of the membrana tympani. We all know that in healthy individuals the membrana tympani may be perforated accidentally, and, in a very large proportion of cases, unless an effort is actually made to introduce some pathogenic germ, such an injury is frequently not attended by suppuration. Given any of the predisposing causes already enumerated, however, and a wound of the drum membrane will almost invariably be followed by a purulent inflammation. This fact is of importance, clinically, in dealing with cases in which permanent perforation of the drum membrane exists. In these cases, an acute purulent inflammation not infrequently occurs as the result of neglect, either on the part of the patient or of the surgeon, through the actual introduction of septic material through the meatus.

The middle ear is most commonly infected through the Eustachian tube. Bacteriological investigation of the secretion from the nasopharynx in healthy individuals almost always shows the presence of a certain number of pathogenic bacteria.* The investigations of Preysing would seem to show that under normal conditions the tympanic cavity contains absolutely no bacteria of any description. Hasslauer† on the contrary, in a series of similar investigations has apparently proven that the tympanic cavity frequently contains various forms of bacteria, such as the diplococci pneumococci, staphylococci, Friedländer's bacillus and occasionally streptococci. These investigations are cited simply

*Read before the New York County Medical Society, Sept. 22, 1902, being the first paper of a symposium on this subject.

* Centralblatt f. Bakteriologie, "Die gesunde menschliche Paukenhöle ist keimfrei," 1899, vol. 25, p. 535. (1. Abtheilung.)

† Klinische Vorträge aus dem Gebiete der Otologie und Pharyngo-Rhinologie, Nov., 1901, p. 177.

to prove that, given a normal mucous lining of the middle ear, pathogenic bacteria may be present not only in the nasopharynx, but may even exist in the middle ear itself, without causing a suppurative inflammation. Given, however, one of the predisposing causes already mentioned, together with the presence of these pathogenic organisms, even in small quantities, and a purulent inflammation results.

Time does not permit of my going further into the etiology of the condition. It will easily be seen, if the preceding remarks have been followed, that an acute suppuration of the middle ear must necessarily be a not infrequent complication of any acute infectious disease, particularly of those diseases in which pathogenic germs are found in large quantities in the nasopharynx. I here refer to measles, diphtheria and scarlet fever. From a clinical point of view, one of the most common etiological factors is the direct introduction of pathogenic germs through the Eustachian tube by the insufflation of water through the nares. This occurs most frequently as an accident during bathing, but may follow the use of the nasal douche, too often, I am ashamed to say, advised by the medical attendant. Here, again, the predisposing factor plays an important part. It is probable that in many instances, water that is not perfectly sterile has entered the middle ear, and has failed to cause any inflammation whatever. This accident, however, if associated with one of the local predisposing causes already mentioned, is almost certain to be followed by serious consequences.

Turning now to the pathology of the condition, we find that whenever we have purulent inflammation of the middle ear, this inflammation involves the upper portion of the tympanic cavity, that is, that portion of the middle ear lying above a horizontal plane passed through the short process of the malleus. This region contains numerous reduplications of mucous membrane which pass between the bodies of the ossicula and the adjacent tympanic walls. A suppuration in this portion of the tympanic cavity is always purulent, and invariably indicates that the infecting germ is of sufficient virulence to attack connective tissue. This, in contradistinction to an acute catarrhal inflammation, which is always limited to the lower portion of the tympanic cavity, a region but poorly supplied with connective tissue. We may frequently have an acute catarrhal inflammation of the middle ear which may run its course without producing a suppuration. Even in those cases which go on to rupture of the drum membrane, the discharge is sero-mucous in character, and disappears in the course of a few days. An examination of this discharge invariably shows that the pathogenic organisms are of the milder variety, such as the staphylococcus or some of the less virulent form of diplococci. When we have to do with a streptococcus and, in a great majority of cases, with a pneumococcus infection the upper part of the cavity is almost always involved. It should also be remembered, in considering the pathology of the condition, that a simple acute catarrhal otitis, in which the infective germ is of low vitality, or in which the bacteria are only present in small quantities, may easily be transformed into an acute suppurative otitis media, involving the upper portion of the tympanic cavity, unless proper measures are taken, such as keeping the parts absolutely sterile to prevent any infection from without. We see this especially in hospital practice, where the patients are not as cleanly as they might be. A patient, presenting at first with an acute catarrhal otitis media, will appear later on with this transformed into an acute suppurative otitis media, involving the upper portion of the tympanic cavity, the change in the case being entirely due to infection of the middle ear through the external auditory meatus.

I have dwelt so long upon the etiology and pathology of this condition, that I have but little time left in which to speak of the symptomatology. Fortunately, but little need be said upon this subject. The first symptom of which the patients complain is a feeling of stuffiness in the ear, quickly followed by actual pain. This pain, in a suppurative otitis, increases rapidly until it becomes agonizing and almost unbearable. In addition to the pain, the patients usually suffer from subjective noises, impairment of hearing, and there may be vertigo and vomiting. There is also, in most cases, an elevation of the body temperature. In adults, the temperature ranges anywhere from 99° F. to 101° F.; in children it frequently rises to 104° F. or 105° F., or even 106° F. The symptom of greatest importance in infants is undoubtedly this sudden increase in temperature. Given the case of a child suffering from one of the exanthemata in which, after the appearance of the eruption, the temperature has run its characteristic course and fallen to nearly the normal standard: suddenly, without any apparent cause, the temperature rises three or four or five degrees, and the infant seems a little restless. Such a condition should always lead to a careful examination of the ears, knowing, as we do, that this portion of the economy is exceedingly prone to be involved during the course of one of these acute constitutional diseases.

COMPLICATIONS OF ACUTE MIDDLE-EAR SUPPURATION.*

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SINCE the subject-matter involved in the title of this paper is sufficiently extensive to fill a volume of considerable size, it will be quite impossible to attempt more than to mention those sequelæ that are apt to occur in the course of this disease, and which often form a part of the general practitioner's experience.

The consequences of an acute otitis limited to the auricle and auditory canal assume quite a number of pathological changes. Chief among

*Read before the County Medical Society, Sept. 22, 1902. Second paper of Symposium.

them is the Otitis externa, or diffuse inflammation, which extends over more or less of the cutaneous surface of the auditory canal and in severe attacks involves the auricle as well. When the inflammation is very intense, the periosteum lining the osseous canal is implicated in the morbid process, which adds to the suffering of the patient, and produces a partial or complete closure of the canal. The presence of this condition not only interferes with making a satisfactory examination of the ear drum, and offers an obstruction to the performance of a successful paracentesis, but in addition, closes the natural outlet for middle ear drainage. It is sometimes very difficult to distinguish between otitis externa and middle ear inflammation when the swelling is limited to the inner part of the canal. The inflammatory process, when of mild character, ends in resolution, still it often passes on to exudation and exfoliation, then the process gradually abates.

Mastoid periostitis is frequently observed as a result of middle ear suppuration. When we study the development of the temporal bone and grasp the variety of conditions it presents at various ages of life, the occurrence of this complication, particularly in babies and young children, ceases to be much of a problem. In the young we find that the mastoid antrum is separated from the overlying soft parts by a very thin layer of bone richly perforated by various channels, along which inflammation may readily extend; then the fissures or sutures which remain open until puberty and sometimes never completely ossify—the squamo-mastoid fissure being the one in this region—form a pathway which facilitates the rapid extension of inflammation from the internal to the external mastoid cortex. In such a manner large collections of pus may form behind the ear before the membrana tympani ruptures, showing that the pus has followed the path of least resistance. More or less pain ushers in an attack which is followed by redness and swelling of the soft parts above and behind the auricle. The auricle soon takes the characteristic position of being pushed forward and downward almost at right angles to the skull. The extent of surface involved by an abscess may be limited to the mastoid region or reach from the tissues in the neck to the vertex. Occasionally we find inflammatory diseases limited to the soft parts of this region which are quite independent of any previously existing otitis; therefore a careful inspection of the ear drum is necessary in all cases before a correct diagnosis is possible.

Inflammation of the mastoid cells is most apt to occur as a complication when there is delayed perforation of the drum, insufficient drainage, and an impermeable Eustachian tube. This subdivision of the ear is the natural outlet of the tympanum, but through an early participation in the inflammation its tympanic mouth is tightly closed, and unless there is an artificial outlet made for the purulent accumulation, the anatomical relations of the tympanum, antrum and mastoid cells, offers an almost unobstructed path for its extension. One of the most reliable indications of a beginning attack of acute mastoiditis, is the persistent excruciating pain. Tenderness on pressure over that part of the mastoid known as the antrum, and over the tip of the process, associated with more or less swelling of the soft parts, are generally present. Fever in children is usually pronounced in the early stages, while in adults its exclusion does not necessarily indicate an absence of the disease. Symptoms of septicemia are by no means rare, and delirium, when present, does not mean a fatal issue. Obliteration of the posterior auricular fold is a symptom usually indicative of mastoid periostitis, which, when following an attack of middle inflammation, demonstrates the presence of inflammation of the mastoid cells. All signs of mastoiditis, except pain, may be absent and it is usually encountered in those cases where the cells have become obliterated through some prior pathological process. A sinking of the upper posterior auditory canal is considered either a reliable symptom of mastoid empyema, or, inflammatory activity located within the mastoid antrum.

As a result of continued pressure of pus within the tympanum, there may be destruction of the soft parts here and there, which ultimately leads to superficial caries of the osseous structure, and one of the anatomical divisions frequently seen to suffer in this way, is the Fallopian canal. While facial paralysis is generally observed as a result of long standing inflammation, occasionally more or less paralysis follows in the progress of an acute otitis. This complication is most often seen in young children where there is a lack of osseous development of the Fallopian canal, thereby making inflammatory extension to the exposed portion of the nerve comparatively easy.

Adenitis of the cervical and post-auricular glands is often seen as a complication of acute otitis, but it rarely extends beyond the point of producing some degree of tenderness. Where the mastoid is extensively involved a true suppuration of the glands may follow. This is especially true in the tuberculous and strumous diatheses.

Retro-pharyngeal abscess as a result of purulent inflammation of the tympanum, may occur through an extension of pus into the Eustachian tube, which is apt to induce dysphagia and dyspnea.

Although the proportional occurrence of intracranial inflammation following acute middle ear suppuration has not as yet been definitely determined, its frequency is no longer a matter of speculation. The construction of the temporal bone with its many cavities and intercommunicating air spaces tends to favor the retention and decomposition of pus, and its intimate relation to the other component parts of the skull, permits the various pathological micro-organisms easy ingress not only to the cranial cavity, but to all parts of the economy through infection of the large venous channels lying in close proximity. The routes by which the inflammation is most

apt to extend, are, by the tympanic roof and the inner posterior wall at the concavity for the sigmoid sinus. Septic material easily penetrates and extends along the many apertures for blood vessels and lymphatics that richly perforate the bone in all directions, while the unossified condition of the petro-squamosal fissure, through which a fold of dura mater passes and lies in direct contact with the mucous membrane of the middle ear, often leaves no effectual barrier to check the inflammatory advance, no matter what its nature may be. Although it is generally conceded that the greater number of cerebral complications follow the chronic form of middle ear suppuration, the danger and widespread infection from acute suppuration is becoming more widely recognized. There is more or less of a localized meningitis in nearly every severe case of acute otitis suppurativa in young people, which, fortunately, rarely develops into a general basilar meningitis, although a lack of proper treatment at the right time may aid it in becoming so. The presence of carious bone is more dangerous to the durn than the open condition of the sutures, for these bone defects are often so firmly closed with fibrous tissue that an excellent protection is thereby afforded to the overlying meninges. I believe it was Brieger who reported a number of sections made on the temporal bone in cases of acute otitis where the sutures were found to be protected in this way, and in no instance was there any indication of the purulent process entering the middle cerebral fossa. While this result is remarkable, and seemingly somewhat accidental, it nevertheless offers an explanation why inflammatory extension is so rapid in some cases and so slow in others, as this anatomical condition is by no means a constant factor. Meningitis, inflammation of the lateral sinus, and extradural abscess, are the critical complications apt to follow severe attacks of acute middle ear suppuration, although much may be accomplished in the early stages of the otitis to prevent their development. Rapidity of inflammatory extension is nearly always seen in the cases of influenza infection.

In conclusion let me say, that in all obscure diseases of children, repeated and careful examinations of the ear should never be neglected, for the excellent work of Ponfick, who made 100 autopsies upon infants dying of various acute and chronic diseases, wherein the majority of the cases, middle-ear inflammation was not suspected, showed nevertheless, that it was present in all but nine of them. He believes therefore, that the tympanum acts as an incubator and generator, promoting toxic symptoms in localized infective diseases. Pomroy, of Boston, has verified this observation in a very able paper.

Mouse Baiting.—Society in Stamford, Conn., seems to be much wrought up over the opposition to its miniature bull fight performances. It would be an interesting matter to know how many anti-vaccinationist's and other anti's are represented.

THE TREATMENT OF ACUTE SUPPURATION OF THE MIDDLE EAR.

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IN the brief time allowed for the presentation of this paper I shall attempt only to make a few practical statements outlining the present status of the treatment of acute middle-ear suppuration. A patient who is undergoing an acute suppurative process in the middle ear has, pent up in a bony canal, a quantity of septic material which usually finds vent by way of the tympanic membrane, but which may at the same time find access to other, near by and connecting bony cavities often resulting in serious and, sometimes, fatal complications. Even in the simplest cases patients present the symptoms of sepsis as indicated by rise of temperature and rapid pulse. It is therefore of the utmost importance that these patients should be placed in bed, and remain there from the very commencement of the attack until the more acute symptoms have passed away. It is not customary to consider such patients ill enough to be so confined, but it should not be forgotten that a severe septic inflammation is in progress with elevation of temperature, rapid pulse and excruciating and exhausting pain. Confinement in bed aids greatly as an abortive measure as well as giving proper rest and protection from cold. Preventive treatment may be further outlined by referring to the many and varied opportunities for forestalling the attacks. There are certain diseases and diseased conditions which surely predispose to them.

First and foremost is the presence of adenoid tissue in the vault of the pharynx. This tissue is a hotbed for the retention and development of infection and the victims are constantly menaced by the entrance of septic material into the open doors of the Eustachian tubes. Indeed, adenoid patients actually do have "running ears" in far larger proportion. It is obvious that all adenoid patients should undergo operation but especially is this true in one who has had even a single attack of middle-ear suppuration.

Ear complications of grippe can generally be prevented by careful treatment of the nose and nasopharynx at the very commencement, and, during its entire course cleaning and detergent sprays, in fact, any treatment which tends to render these tissues clean and free from secretions, may be resorted to. Added to this the patients should be cautioned to avoid violent blowing of the nose—a procedure which, no doubt, often effects the introduction of infected material into the middle ear. Ear symptoms of more or less severity nearly always accompany the exanthemata, especially scarlet fever and measles, and suppuration often results.

That much may be done to prevent such suppuration, and that but little is actually done by practitioners seems to be a fair criticism. During a recent season when measles were prevalent the

writer took pains to learn how much even our best and most skilful physicians attempted in the way of prevention of middle-ear suppuration. These observations led to a belief that during the early stages of the exanthemata rarely any attempt is made to cleanse the nose or nasopharynx of surplus septic secretion. These patients should receive the very same care as that already recommended for grip. Almost any detergent non-irritating alkaline spray will serve the purpose. A tablet made up of sodium salicylate, sodium bicarbonate, boric acid (aa gr. iijss), oil gaultheria, q.s., dissolved in one ounce of sterile water, has been found to be almost without irritating qualities. This tablet was devised and first used at the Manhattan Eye and Ear Hospital and in that institution is called the Manhattan tablet. Free purgation, preferably by means of calomel, is a most helpful clinical adjunct, especially when administered at the very commencement.

For the relief of the excruciating pain during the time previous to the establishment of the discharge, not much can be accomplished, aside from the use of heat and narcotics. If examination of the drum shows clearly that no pus has yet formed, the canal should be irrigated with large quantities of hot sterile water at half hour intervals. A large douche bag hung high enough to give sufficient force to the stream is probably the best method for hot water irrigation. The temperature of the water may be from 100° to 110° F. Added to this should be the internal administration of some form of narcotic which will be far less harmful to the patient than the prolonged excruciating pain. Such remedies as hot oil and laudanum, the heart of an onion and a long list of similar ones are only mentioned to be condemned for obvious reasons. If the discharge has not actually commenced and the tympanic membrane is bulging or otherwise giving evidence of the presence of pus in the cavity, a free incision should be made. It requires some experience to make this incision properly but incision is preferable to puncture. Such incision should be made under strictly aseptic surroundings and it should be carried not only through the membrane proper but upward through the attic region and well out on to the wall of the canal. This serves to open freely both the tympanum and attic, and also to bring about a free flow of blood, thus greatly relieving the congestion. Many serious results may be avoided by resort to early incision.

Treatment during the attack.—After the discharge is established it is necessary to decide upon the course of treatment to be followed and in so doing we should not forget that the chief requirements are cleanliness and free drainage—and cleanliness should refer to the nose and nasopharynx as well as to the external ear and auditory canal. Time will not permit even a narration of various plans suggested in the books and writings of otologists. Frequent irrigation with a one to 4,000 sterile solution of bichloride of mercury, thoroughly cleansing the canal of all discharge, using one to two quarts at each treatment is perhaps the easiest and best method. This should be done every two hours. With young children it is necessary to use some force for the first few treatments but after a little they submit with good grace. For the past few months in the outdoor clinic of the Manhattan Eye and Ear Hospital I have been using formaldehyde solution in the same manner. Very careful instruction should be given to the mother or nurse as to doing this work thoroughly and at each daily visit the attending physician should give a complete treatment himself, wiping out all surplus secretions with a cotton probe and making a careful examination of the condition of the drum and the canal by means of reflected light. This procedure is necessary both for the benefit of the patient and also that the mother or nurse should see exactly how the work should be done. At each visit pressure should be made over the mastoid, especially over the antrum and tip, and the patient questioned, to discover if there be pain in this region. A small quantity of sterile gauze should be packed loosely in the outer part of the canal and changed as frequently as it becomes soaked with pus.

It should be the routine procedure in both private and hospital practice to make microscopical examinations of the pus in all acute cases of middle-ear suppuration. Such examination should be made as soon as possible after the establishment of the discharge. The predominance of certain organisms, especially those accompanying grip and the exanthemata becomes of importance when complications arise. It has been fully demonstrated that when the more virulent organisms predominate serious complications are more liable to arise. When mastoid involvement occurs during the course of middle-ear suppuration one's judgment is usually subjected to a severe test. The very early symptoms may be, and sometimes are, relieved by measures other than external operation. Free incision of the drum membrane as heretofore indicated may be sufficient. In fact the whole theory of such relief is based upon the importance of free drainage. So that even when the antrum itself is involved the danger of further involvement of the mastoid cells may be avoided by establishing such drainage. This, together with local blood-letting by means of real or artificial leeches and the application of either the ice coil, or as some prefer, hot poultices and the hot douche about exhausts the list of abortive measures. Aside from the ice coil and the establishment of free drainage in the canal the benefits to be derived are at least meager. The great tendency is to make use of preventive measures for too long a time. The ice coil should not be used longer than 24 or 36 hours, after which time it may become a dangerous application on account of its proneness to mask the symptoms. Continued use of poultices is equally bad. In fact, any prolonged attempts to abort mastoid suppuration are to be deprecated. The patient, of course, should be confined to bed and

should remain there until all mastoid symptoms have passed away.

While opinions may vary to a marked degree from operating at the very commencement of mastoid involvement to a delay which may lead to extensive complications, there certainly must be a period when operation should no longer be delayed. Prolonged tenderness upon pressure in the region of the antrum together with the bulging of the atticus tympanicus and the superior posterior wall of the canal constitutes sufficient reason for operative procedure, and especially so when the pus contains the more virulent micro-organisms. In other words external operation should be performed in acute suppuration of the mastoid cells when a permanent remission of symptoms has not been brought about by free drainage through the drum membrane, or by such local applicatios as have heretofore been described, and when this time has arrived there should be no delay. The majority of hospital cases and many of the private ones have already reached this stage before they come under the care of the otologists. Just when the exact time arrives may not be measured by days or hours. The date must be determined by the good judgment of those who have the patient in charge.

Many delays in operating come either from lack of willingness to consent upon the part of the patient, or his family, or from the extreme conservatism of the family physician. Conservatism is a quality not to be ignored, but when carried to the extreme it reacts to the great detriment of the patient. The same statement may be equally true when applied to radicalism. Indeed, it is quite possible for the conservative to be radical in his conservatism, and of the two it would seem to be preferable that one should be conservative in his radicalism rather than radical in his conservatism.

Another strong point in favor of early operation is the better hearing results to be thus obtained. Early operation usually will be followed by practically perfect hearing on the affected side. It must not be forgotten that pus pent up in the mastoid cells is in a position to seriously menace nearby vital structures. Not more important is it to remove the suppurating appendix than to open the suppurating mastoid cells.

General Treatment.—A very careful examination of the general physical condition of the patient should be made and the facts relating to his habits, digestive and eliminative functions should be ascertained and set right. The general or internal treatment may often be commenced during the suppurative period, so soon as the temperature becomes normal. The internal treatment should be just whatever the general condition of the patient seems to require. Iron, cod-liver oil, strychnine, iodide of potash, creosote and hypophosphites may be mentioned as most helpful medicaments. Freshly made syr. ferri iodide is mostly used in our large ear clinics. These tonics are to be given not only because of the general condition of the patient requires such treatment, but because such improvement in turn brings to bear a most helpful influence upon the suppurative process.

Conclusions.—(1) In acute middle-ear suppuration early and free drainage is of the utmost importance; (2) patients should remain in bed until acute symptoms have passed; (3) free purgation (preferably by means of calomel) should be resorted to; (4) microscopical examinations of pus should be made; (5) local treatment should consist of cleanliness and free drainage; (6) proper internal medication should not be ignored; (7) prolonged attempts to abort suppuration of the mastoid cells are to be condemned; (8) early operative interference in mastoid suppuration prevents the more serious complications and gives far better hearing results; (9) uncomplicated cases of acute suppuration of the middle ear, when properly treated, always recover in from two days to three weeks; (10) the responsibility for preventive treatment must be largely assumed by the family practitioner. He should fully appreciate the importance of preventive treatment when caring for grippe, the exanthemata, or other infectious intra-nasal conditions, and also, the early and complete removal of diseased adenoid tissue.

THE ETIOLOGY, PATHOLOGY AND SYMPTOMATOLOGY OF CHRONIC PURULENT OTITIS MEDIA.*

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THE serious complications which appear during the course of chronic purulent disease of the middle ear, emphasize the importance of treating this affection with earnest consideration.

Chronic otorrhea is more prevalent than the general practitioner is apt to believe from personal experience. When we learn through a recent report† of an examination of school children, carried out by Arthur Cheatle, in London, that out of 1,000 children, 335 had discharge from one or both ears, the frequency of this condition is rather astounding.

Etiology.—In the majority of cases this disease follows an acute infection of the middle ear which has been neglected or improperly treated. Syphilitic and tubercular manifestations are the exceptions to this rule. The latter changes may progress insidiously without much local discomfort except for the loss of hearing and the presence of a purulent discharge. The previous history and a bacteriological examination will assist in excluding these systemic infections. Scarlet fever, measles and diphtheria are potent factors in causing middle-ear disease in early life, while

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†Journal of Laryngology, June, 1902.

influenza has in recent years been followed by severe and prolonged aural complications.

Though much has been said and written upon the influence of nasal and post-nasal disease in aural disturbances. I cannot pass by this portion of the subject without mentioning the fact that my present experience certainly corroborates the observations recorded in my paper upon "Adenoids: A Contributive Factor in Aural Affections," which was read before the Pan-American Medical Congress in 1893.

We should examine the pharyngeal space in all ear cases, be they catarrhal or purulent inflammations, and we will often find the cause of a persistent discharge and other annoying symptoms. It is not uncommon to see marked improvement in such cases after the removal of a hypertrophied pharyngeal tonsil. These growths, by their presence, keep up a congestion of the adjacent tissues, and act as an obstruction to the pharyngeal and tympanic circulation. The recesses which exist between the folds of the lymphoid hypertrophy offer a suitable habitation for the generation of infectious bacteria. These find their way through the Eustachian tube and exert their deleterious influence upon the tissues in the middle ear and neighboring cavities.

Pathology.—Micro-organisms of a pathogenic nature are the important element in the production of purulent otitis. All the conditions favorable for their growth and propagation are found in the tympanic cavity, but we seldom obtain a pure culture of any germ from this chamber. The infection is almost always of the mixed variety, though the *Staphylococcus pyogenes* is probably the most constant. With the invasion of streptococci and pneumococci the inflammation assumes a more virulent aspect, and dangerous complications are liable to follow. The continued presence of either of the latter microbes lends additional weight to the importance of hastening surgical intervention in doubtful cases.

Moose has found that during catarrhal exacerbations the mucous membrane of the pharynx and middle ear becomes infiltrated with innumerable polymorphous cells, causing the membrane to become hyperplastic. There is no tendency to purulent disease under such conditions, unless a change occurs in the nourishment of these tissues. If the resistive power weakens, the micro-organisms rapidly increase in number, and infection results. The smaller the number of microbes, the less liability there is to pus formation. In children, the invasion enters through the Eustachian tube very early, as this channel is wide and short. In eruptive diseases, the circulatory and lymph vessels are apt to carry the infection. Hematogenous changes are inclined to become chronic in character, as the healing of the parts is more complicated.

In prolonged suppuration, the microscope shows that the drum and mucous membrane of the middle ear is hyperemic and hypertrophied, with round celled infiltration.

Schwartze states that this overgrowth invades the pneumatic spaces, and also imbeds the ossicles as it advances. In some places the epithelial layer of the membrane is thrown off and ulcerations exist. Owing to these changes, synechia form, and the ossicles, together with the tendons of the tensor tympani and stapedius muscles, become bound down.

If the inflammation continues granulations and polypi appear, and the periosteum becomes involved; the ossicles and bony walls are attacked by the round celled infiltration, and necrosis results, with dislocation of the bonelets and exfoliation of the adjacent bone. In this manner the attic, aditus and mastoid cells become affected. Fistulæ through the tegum tympani are formed and infection spreads to the dura and cranial cavities. Cerebral complications are consequently most frequently associated with chronic purulent disease.

If the path of infection extends through the posterior wall of the mastoid, sinus involvement and cerebellar abscess may result.

In some skulls the bony capsule of the jugular bulb stands out prominently along the floor of the middle ear, and may become diseased early in the course of a severe infection, causing a septic thrombus in this portion of the venous circulation.

In persistent purulent otitis, we find a loss of a portion of the drum membrane. At times, the entire membrane has been absorbed, and the remains of the ossicles may be seen hanging in the middle ear. When the secretion is small in quantity, it may form a crust over a small perforation, and the latter may be overlooked in a cursory examination. The position of the perforation assists in locating the disease. If the opening in the drum is situated in Shrapnell's membrane it usually signifies necrosis of the ossicles or involvement of the attic. As the incus is scantily supplied with blood vessels, it is the first of the ossicular chain to become diseased. It is only in long-standing cases that the posterior wall of the middle ear becomes affected, except in tubercular or other severe infectious inflammations. The folds of mucous membrane which line the upper portion of the tympanum become hypertrophied and so retard drainage, thus exposing the adjacent cavities to the infectious secretion. In this manner the mastoid becomes involved in acute manifestations, and we must bear in mind this anatomical feature, as these reduplications of membrane must be attacked when drainage is obstructed, consequently the bulging drum must be incised high up and deep, when mastoid symptoms exist.

Symptomatology.—Loss of hearing, with an intermittent or persistent discharge, are the most frequent symptoms of this chronic affection. A weeping eczema of the canal may give rise to moisture, without the existence of middle-ear trouble. If, however, the purulent discharge from the ear is acrid, the skin becomes macerated and a dermatitis results. Frequently the canal is secondarily infected, and a furunculosis develops. Such a lesion may so obscure our vision

that the inner portion of the canal cannot be seen, and it is impossible to determine at the first examination whether the middle-ear suppuration is the exciting factor. The character of the discharge will at times indicate the presence of bone necrosis, especially if the secretion is greenish or foul-smeling. A bloody discoloration suggests the presence of granulation tissue or polypi, while a distinct blue tint is due to the *Bacillus pyocyaneus,* and also indicates bone disease. When the discharge is profuse and reappears immediately after our attempts to clean the canal, we should suspect a reservoir of pus in the mastoid process, or neighboring cavities, and must not hesitate to employ surgical measures. The quantity of the discharge is augmented by catarrhal changes, current diseases and trauma. A seemingly trivial otitis may suddenly assume an alarming aspect, and even terminate fatally in a rapid manner.

To illustrate the preceding statement I briefly mention the case of a young man, twenty years of age, who came under my care a year ago. His right ear had been discharging off and on for 10 years without much annoyance, except for some loss of hearing on that side and a slight amount of secretion. A week before I saw him he was struck over the ear by the fist of one of his companions. The same day, pain set in, and the discharge became profuse and bloody. A few days later, there was an offensive odor to the secretion and the pain radiated over the right side of the head. His temperature rose to 103° F., and chilly sensations appeared. Pressure over the mastoid and its tip revealed tenderness. The patient presented a distinct septic picture, so the mastoid was opened and found extensively diseased, together with thrombosis of the lateral sinus and internal jugular vein. The latter was ligated near the clavicle, and the sinus thoroughly curetted. Reinfection of the posterior portion of the sinus occurred, and two subsequent operations were performed in two weeks, and the sinus was found diseased toward the torcular. Fortunately the patient recovered, but the history of his case shows that a chronic suppuration may exist for 10 years without causing much inconvenience to the individual, until an exciting factor reawakens the slumbering sepsis to renewed activity. Pain is not a characteristic symptom in chronic cases, except during an exacerbation. It is then suggestive of further extension, and should be carefully considered.

It is not unusual to find marked destruction of the mastoid in this phase of the disease without distinct premonitory symptoms. Invasion of this process has followed the removal of diseased tissue from the middle ear due to disturbing nature's protecting zone of granulations. These accidents demonstrate the importance of careful asepsis in seemingly minor aural operation.

If during a purulent otitis, the patient experiences a chill or chilly sensations, with a sudden rise of temperature, we must at once suspect an extension of the infectious process, and think of the presence of pyemia, sinus thrombosis, meningitis and cerebral complications.

The dangers that lurk in a chronic discharging ear, cannot be too strongly impressed upon the public at large. Professor William Macewen has tersely remarked, "We cannot too often recall the warning that the virulence of an otorrhea cannot be measured by the quantity of the secretion, its odor, or the slightness of its initial symptoms, and that the pyogenic process may proceed insidiously until some accidental circumstance precipitates a dangerous or fatal crisis."

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COMPLICATIONS OF CHRONIC SUPPURATION OF THE MIDDLE EAR.*

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IN the brief ten minutes allotted for the presentation of this division of the topic under discussion it will be possible to speak only of those phases of the subject which deal with the etiology of the complications of chronic purulent otitis media, and of the frequency and serious nature of these complications.

Dr. Clarence J. Blake, of Boston, in a paper on "Otology and General Medicine," speaks of Prof. Politzer as holding up, in the course of one of his lectures, a temporal bone by the styloid process, and, while turning it slowly around before his class, making the following statement: "Gentlemen, the temporal bone has four sides; the outside is bounded by life, from which there comes, through the opening of the external auditory canal, one form of our appreciation of what life means; on the other three sides this bone is bounded by death."

That this metaphorical but forcible description is practically true is readily comprehended when the number and importance of the anatomical parts which may be involved and the serious pathological processes which may develop as complications of an acute or chronic purulent otitis media, are taken into consideration. It is my province to speak only of the complications of chronic purulent otitis media. What are these complications?

First, we have those which relate to the parts primarily involved, and among these may be mentioned the following pathological lesions: The membrana tympani is wholly or in part destroyed; a portion of, or all of, the mucous membrane lining the tympanum has lost all its characteristics, and in its place are to be found granulation tissue and polypi; similar changes are observed in many cases in the adjacent related cavities; one or more of the ossicles are carious or they may have been totally destroyed; or there may be a necrosis of the tympanic walls. In a second group may be placed those complications

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which involve still other auditory structures, as, for example, a necrosis of the petrous portion of the temporal bone, with destruction of the auditory nerve; a cholesteatomatous mass in the mastoid antrum; or a mastoiditis of such portions of the mastoid process as may have escaped eburnification.

As a result of these pathological changes there is an impairment or loss of the important function of hearing.

In the third and last group belong those complications which involve other organs than those of audition. Thus, for example, one of the sinuses at the base of the brain may become involved in a septic inflammation, with the formation of a septic thrombus; the internal jugular vein and, in rare cases, the carotid artery may also be involved in a similar inflammation.

The dura mater may be the seat of a general or a localized pachymeningitis or extra-dural abscess; the pia mater and arachnoid may also be involved., *i.e.,* there may be a leptomeningitis; or the septic infection may invade the cerebral structures, giving rise to the formation of an abscess cavity in the substance of the brain. A facial paralysis may occur as a result of an erosion of the Fallopian canal.

The respiratory organs may be infected and there may be a septic pneumonia or a septic pleurisy. A metastatic abscess may develop in the liver or the spleen, or in some other part of the body.

A septic synovitis may involve one or more joints. A gastro-enteritis may occur as the result of the infected material passing down the Eustachian tube into the pharynx and then being swallowed. Or, finally, a general pyemic condition may be established.

It is remarkable, not that so many cases of intracranial and other complications arise in the course of a chronic purulent inflammation of the middle ear, but that many more cases do not occur; for upon reflection it must be admitted that almost ideal conditions exist in and near the middle ear for the propagation of pathogenic germs, and for their penetration into neighboring regions. It is also a fact that this invasion of neighboring regions is still further promoted by gross negligence on the part of the laity, and, to a certain extent, by the failure of medical men to realize the dangerous nature of this class of cases. Fortunately, the latter statement is growing day by day less true.

We find, in considering these points more in detail, that, in the first place, the disease is seated in a small cavity (the tympanic cavity) and that, in many cases, it involves secondarily the smaller adjacent cavities of the mastoid antrum and the mastoid cells, *i.e.,* cavities which are full of little niches and pockets, which are dark and of a uniform temperature, and which are lined with a mucous membrane that has become diseased and is secreting an abnormal amount of acrid fluid. In fact, we have here an ideal incubating chamber and medium for the generation of germ life. Micro-organisms (both saprophytic and pathogenic) are to be found in many varieties and in swarming colonies in all cases of chronic purulent otitis media. The pathogenic varieties most often observed are the streptococci (the most virulent of them all), the staphylococci, and the pneumococci; while tubercle bacilli, the *Bacillus intracellularis,* Friedländer's bacillus, the typhoid bacillus, the bacillus of diphtheria, and the *Bacillus coli communis* are also at times found in a bacterial examination of the purulent exudate obtained from this focus of disease.

With the probable exception of those cases which are due to tuberculous or syphilitic disease, all cases of chronic purulent otitis media result from a neglected acute otitis media. The inflammation, as it becomes chronic, changes the character of the mucous membrane in such a manner that in time the connective-tissue element largely predominates and the formation of granulation tissue with polypi is the result. Owing in part to the diminished blood supply and in part to the action of the bacteria, a necrosis of the ossicles and of the bony walls of the tympanum is started. These lesions extend until other cavities and structures are involved in the same destructive process.

There are many paths along which infection may travel from the original seat of the disease to most important and vital parts. The bacterial invasion may reach the meninges or deeper brain structures by way of the vascular system; thrombi may form in the small veins which pass from the tympanum and its contiguous structures into the neighboring sinus, and through the infection of the latter the veins which lead into it from the cerebral tissues may similarly become infected; or a thrombus may form in some small vessel, disintegrate, and be carried (because of a reversal of the blood current, owing to the occlusion of the vein and also in a measure to the lack of valves in the veins of this region) into the cerebral tissues; the bacteria may advance along the perivascular sheaths of the arteries and thus give rise—although such an occurrence is rare—to septic thrombi in the arteries themselves.

The lymphatics afford another pathway along which infection may travel to other structures. In rare cases the infection may extend from the middle ear, through the horizontal semi-circular canal of the vestibule, into the labyrinth, and thence by way of the internal auditory meatus to the meninges. Again, infection may be the result of direct contact made possible by the destruction of, or because of a dehiscence in, the bony partition separating the cerebral from the middle-ear cavities. Another means of infection was well illustrated in a case which was under my care during the past spring. In this case a sinus led from the antrum to the cortex of the mastoid process, where a very large subperiostal abscess formed. The upper limit of this abscess extended as high up as to a point a short distance above the parietal eminence. A little below this eminence the bone was necrotic,

and that the necrosis had extended from without inward was made evident, when the necrotic bone was removed, by the extent of the necrosis externally and its limited area on the inner table. At this point there was an extra-dural abscess, connected by a fistulous tract with a cerebral abscess; the extra-dural abscess did not extend downward farther than within three-quarters of an inch of the floor of the middle cerebral fossa—a further evidence that the infection was not conveyed through the tympanic roof. In this case, therefore, it is reasonably clear that the infection chose a most roundabout path.

A disintegration of a thrombus may occur and particles of it loaded with bacteria may pass into the general circulation, to give rise to a metastatic abscess, a septic pneumonia, or a septic pleurisy; or, as I have before stated, pus may pass through the Eustachian tube into the pharynx, to be swallowed and to give rise to a gastro-enteritis.

That these complications are not rare, statistics easily prove. In this country about 4,000 cases of brain abscess of otitic origin, or about one in every 19,000 of population, annually die, while, according to Körner, the Prussian statistics for 1885 give a death-rate for otitic brain abscess in that country about three times as great as that given above for the United States, or about three for each 20,000 of population. Whether the number for this country is lower because of the higher general intelligence of the people, which causes them to be less neglectful of a disease of the ear, or because of better hygienic and other conditions (favoring as they must a small number of cases with aural disease), or whether the number may not perhaps *seem* to be less because of the less exhaustive character of our statistics, are questions which at present I am unable to answer.

According to Pitt the number of brain abscesses which occur from otitic disease amount to 30 per cent. of the whole number. Barr estimates it as high as 50 per cent. of the whole number of abscesses of various origin. Pitt estimates that five per cent. of all cases of meningitis and two-thirds of all cases of sinus-phlebitis are of otitic origin. In 17,028 autopsies in London death was due in 102, or one in 167, to an otitic lesion.

In 10,707 cases with tympanic suppuration 69 deaths, or one in 155, occurred as the result of some aural lesion (Körner). In 38,017 aural patients death occurred as a result of the disease in 119, or one in 319 (Bürkner's and Randall's individual statistics added together). As to other lesions, such as general pyemia, pneumonia, etc., I have been unable to obtain any statistics.

Of all the intra-cranial complications pachymeningitis is the most common. Under this designation are included also those cases of so-called extra-dural abscess, which is a limited pachymeningitis walled off by adhesions from the rest of the brain surface. In the same category are also placed those cases which are known as perisinus abscesses, a condition which is in fact a pachymeningitis limited to the site of the sinus.

According to Jansen, pachymeningitis is four times as common as sinus-phlebitis, and 20 times as common as brain abscess. When either of these latter lesions occurs pachymeningitis is generally to be found associated with either or both of them, and especially is this the case with regard to sinus-thrombosis.

Leptomeningitis is an affection of the arachnoid and pia mater in which the infective material is carried along the minute blood vessels that lead from the brain. These cases are very fatal. Cases of serous meningitis of otitic origin, which, as I believe, occur more often than we have hitherto supposed, if recognized early and operated upon in such a manner as to secure good drainage, stand a very fair chance of recovery.

In brain abscess the cavity is connected in 92 per cent. of the cases with the suppurating ear by a fistulous track. In 95 per cent. of the cases there are multiple abscesses. In 6.6 per cent. of the cases the abscess lies within the brain and is separated from the source of the disease by normal brain tissue. The majority of these abscesses are to be found in the cerebrum, and of these the larger proportion are to be found in the inferior and posterior portion of the temporo-sphenoidal lobe. The next most common site is in the anterior and lateral portion of the cerebellum, behind the petrous portion of the temporal bone. Other portions of the temporo-sphenoidal lobe and also of the frontal lobes are often found to be involved, and in a few cases the occipital lobe has been the seat of the abscess.

Next to pachymeningitis, sinus-phlebitis and thrombosis occur the most often of all intra-cranial complications. The sigmoid sinus is the one most frequently involved and is generally accompanied by a perisinus abscess. By extension of the disease the internal jugular is very often involved, and the occurrence of general pyemia and other septic conditions elsewhere is frequent. When the superior petrosal sinus is involved a necrosis of the posterior and superior portion of the petrous portion of the temporal bone is likely to be the consequence. When the inferior petrosal sinus alone is involved it is the result of a necrosis of the apex of the pyramid or it is due to a purulent inflammation of the labyrinth. The cavernous sinus is seldom involved. In 82 per cent. of the cases the bone necrosis extends through the inner table of the mastoid process and is in direct contact with the sinus wall.

To prevent the development of these most serious complications the medical adviser must urge the necessity of dealing with every case of chronic purulent otitis media as something not to be lightly regarded, but as a disease which must be eradicated, no matter how innocent a case it apparently may be.

The disease is capable of advancing most insidiously and often without any symptoms until a very extensive destruction, not alone of the

tympanic cavity and its adnexa, but of the brain tissues as well, has taken place. Brain abscesses have often been found at the autopsy to have been the cause of death when no such lesion was suspected in life. How many more cases of this and other pyemic complications of otitic disease die annually in which death is attributed to the complicating pyemic metastasis, or to apoplexy, or to heart disease, may only be suspected.

In the words of MacEwen, "One who has a chronic purulent otitis media is liable to have, with very little warning, a most serious or even a fatal illness."

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THE TREATMENT OF CHRONIC SUPPURATION OF THE MIDDLE EAR.*

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THE time allowed me admits of but a crude handling of such a large subject, and I shall be able to touch only briefly upon some of the main points, with a reference to or mention of other more important operative measures for the relief of this disease.

At the outset, it is well to understand what is meant by the term "Chronic Suppuration" when applied to the ear.

The writer would define this as an inflammation of the structures which form the middle ear, that has lasted for a period of six months or more, with or without treatment.

There are many methods advised at the present day in the treatment of this disease, but clinically we shall consider only two, the dry, and the irrigation or wet treatment.

In treating this disease we should have three objects in view: first the cure of the otorrhea; second the improvement of the hearing; and third the relief of the subjective sounds, when present.

At the beginning of treatment a careful examination of the nose and naso-pharynx should be made, and should obstructions exist in one or both localities, they should be removed, as in children and young adults, a very common cause of middle-ear suppuration is due to the presence of adenoid tissue in the pharyngeal vault.

At the outset, the first cardinal principle is to secure and maintain cleanliness of the auditory canal and the parts adjacent. After this has been accomplished, the next important point is to determine just what structures of the middle ear are involved, as this will have a decided bearing upon the prognosis of the case. We should determine the location of the opening in the drum membrane, and whether the present opening is draining the cavity behind it sufficiently, and if not, this opening should be enlarged, so as to promote drainage. Usually the higher the perforation in the drum, the greater the involvement of the structures beyond, and the less tendency to a kindly healing. We should ascertain at the first examination, and before treatment is begun, if any caries of the ossicles or the adjacent structures exists, and this can easily be made clear by cocainizing the point of the perforation, and using the silver probe to palpate with, but the mistake should not be made of calling every particle of exposed bone "dead bone."

The dry treatment is carried out in the following way: The hands of the person who is to treat the case are first made sterile; then sterilized cotton is used on a carrier to thoroughly wipe the canal dry. After this drying process, a fine powder is insufflated over the drum surface as well as the canal walls; the powder used varies with the person treating the case: zeroform, nosophen, boric acid, acetanilid, aristol and iodol, have all been used with good results; after this, a small wick of gauze iodoform, borated, or plain sterilized, is passed up and, if possible, into the perforation, and the canal is loosely filled to the meatus.

If the opening in the drum be too small to admit the end of the gauze wick, then the canal is loosely packed from the drum to the meatus, and the gauze thus acts as a siphon to carry away the discharge. As soon as the gauze becomes thoroughly moistened with the discharge, it should be removed and the process of cleansing the canal carried on as before. The chief objection to this method of treatment is the absence of a trained nurse to carry it out on antiseptic lines; if this could be arranged for it might in the future become the ideal way of treating this disease; but when such treatment is left to the patient or to some member of his family, who knows practically nothing of what the word "sterile" means, it would seem that the disease might be prolonged to an indefinite period, owing to reinfection constantly taking place; and to put such a method of treatment in the hands of a hospital or clinic patient would seem to the writer a prolific cause in maintaining the disease.

The irrigation or wet treatment is the one ordinarily used to-day among the majority of aurists, and consists in syringing the ear with one of the following solutions: Bichloride of mercury in the strength of one to 4,000 to one in 8,000 of sterile water; a solution of boric acid of the strength of 20 grains to the ounce of boiled water; a solution of carbolic acid ranging in strength from one to two per cent.; a weak solution of formalin and a solution of potassium permanganate; a normal saline solution or warm sterilized water is all that is necessary in many cases; indeed, I believe we could dispense with all others except the warm saline solution, did we but try. When the patient is seen by the surgeon, and after the parts are cleansed in the manner described, a good solution to further sterilize the parts, is one composed of equal parts of the solution of bichloride of mercury one to 1,000 and absolute alcohol; to this can be added boric acid from 10 to 20 grains to the fluid ounce.

* Read at the meeting of the Medical Society of the County of New York, Sept. 22, 1902. Sixth paper of Symposium.

If granulations be present, they can be destroyed by chemical agents; the one most commonly used in the ear to-day is a solution of silver nitrate ranging in strength as high as 360 grains to the ounce. Chromic acid is also used.

Before using either of these agents, the parts to be cauterized should be cocainized, thus avoiding pain for our patient. If polypi are present, they can be saturated with a solution of cocaine or eucaine and adrenalin, and be removed by the use of the curette or snare; and after their removal the base should be cauterized. In some of the cases where polypi exist, especially in our younger patients, it is best to administer an anesthetic, in order to obtain a complete removal. After the canal has been cleared in this way, and also in the ordinary cases of otorrhea, we direct the patient, or whoever is to care for him, to irrigate the ear with a solution of bichloride of mercury one to 5,000, every two, three or four hours, as the case may be, depending upon the profuseness of the discharge. As soon as the discharge begins to diminish, then the frequency of irrigation should be lessened, as it is well to bear in mind that the too frequent syringing of the ear lessens the integrity of the tissues and serves to soften and make the parts flabby, thus preventing resolution from taking place. After we have cleansed the canal, and just prior to stimulating the part, we should direct the patient to perform Valsalva's method of inflation, as this tends to expel from the middle ear, through the opening in the drum, any retained secretion. Should the patient be unable to do this, then gentle inflation, by means of the catheter, should be performed, and the secretion thus displaced should be removed, before our final application is made to the surface we wish to stimulate.

After the discharge becomes less abundant, and the patient is seen less frequently, a solution to be used at home can be prescribed, composed of the ingredients mentioned in a former paragraph, namely, boric acid dissolved in equal parts of alcohol and a one to 1,000 solution of bichloride of mercury. The patient is instructed to place from five to eight drops of this solution in the ear, morning and evening, after the cavity has been cleansed. This acts as a stimulant, and hastens the healing process. Later, as healing progresses, it should be used less frequently and finally dispensed with, when a firm cicatrix is formed. When the discharge is diminishing and after it has ceased, we can hasten resolution and improve the hearing by inflating and vaporizing the middle ear every other day, and later, once or twice a week; by this mode of treatment, the adhesions already formed are stretched, and the new drum surface is saved from any marked degree of contraction.

In cases where the perforation in the drum is on a level or higher than the short process of the malleus, we find a small amount of thin serous secretion, and this persists in spite of all treatment, we can, in a large number of cases, bring about a speedy cure by the thorough cleansing of the middle ear, by the use of the middle ear syringe, first injecting our sterilizing solution through the perforation until we are sure the cavity is clean, and then injecting an astringent solution sufficient to completely fill the tympanic cavity. The astringent most in use here is silver nitrate; and at first it should not be used stronger than five grains to the ounce; a solution of eucaine or cocaine can be injected into the cavity before the silver solution is used, and this will render it much more comfortable for the patient. Stronger solutions can be used later should they be required. Zinc chloride has been used in this way, and also a two per cent. solution of protargol has been followed by rapid cures, the stimulating qualities seeming to act beneficially without the irritating properties of some of the other astringents.

As to the use of hydrogen peroxide in the treatment of this disease, there is a wide diversity of opinion. Some authorities report most brilliant results from its use; the claim is that when so used it clears out the small cavities by displacing secretion, which otherwise would not appear without the use of this agent. That this claim is well founded there can be no gainsaying; but I should hesitate to use this agent in the ear, when the opening in the drum membrane is small, as the force exerted by the fluid might easily displace retained secretion, and carry it backward through the auditus into the mastoid antrum, and thus infect this structure. Were the perforation in the drum a large one, then I should not hesitate to use this agent, but a better and more stable one would be hydrozone. Enzymol in a 50 per cent. solution has received high praise as an adjunct in treating this disease. I have tried it in a number of cases, but with little or no improvement.

When the discharge is very persistent, and we have an area of exposed bone complicating the simpler condition, I have found the use of carbolic acid of very great value. The head is placed in a horizontal position and the canal partially filled with pure carbolic acid, and allowed to remain about 30 seconds, when the canal is syringed with pure alcohol. In this way the alcohol counteracts any escharotic action which the acid would have upon the normal tissues, and yet at the same time the diseased parts are thoroughly cleansed and stimulated. This procedure causes but little pain, as the patient experiences only a slight stinging sensation which quickly disappears. When after all the ordinary methods of treatment, a small perforation exists, with little or no moisture, the parts upon inspection look indolent, the method suggested and practiced by Blake, of fitting a very thin piece of sterile paper over the existing opening, will oftentimes heal the perforation. Flexible collodion applied over the perforation will also bring about healing in a short time.

To improve the existing tinnitus after the otorrhea has ceased, we employ inflation and vaporization of tube and middle ear, and also ad-

minister strychnia in tonic doses, as well as small doses of the iodide of potassium. When we find upon examination intra-tympanic caries, no time should be lost in its removal, and if there has been no previous involvement of the mastoid structure, this removal can be accomplished through the external auditory canal. If, however, the mastoid shows signs of a previous involvement, or the amount of caries is so extensive as to preclude its complete removal through the canal, then a posterior opening should be made, and the radical operation performed, so as to throw the mastoid antrum, the cavity of the middle ear, and the canal all into one. After this has been done, the application of a skin graft, taken from the thigh of the patient, and placed on the exposed area of the middle ear after the manner described by Ballance, will promote healing, and give a rapid and permanent result. In cases of long standing suppuration with extensive caries within the tympanum, it is unwise to attempt removal through the canal, for in a small proportion of these cases, perforation has already taken place through the tegmen, and the irritation set up at this point by the manipulations within the ear will often cause disastrous results by a future extension through this opening.

Also in cases of long-standing suppuration, when the discharge has suddenly ceased, and the patient complains of an uneasy sensation about the head with pain, and accompanied with a slight rise of temperature, we should lose no time in promoting free drainage from the middle ear, and even, if necessary, open the mastoid; and many of these cases if so treated will show marked destruction of the osseous structure.

During the course of a chronic suppuration, the mastoid is liable at all times to infection, and should it become affected, its opening is imperative at once in order that the deeper intra-cranial structures may not become involved. Should an involvement, such as an epidural abscess, thrombosis of any of the sinuses, or a subdural collection of pus take place, they should be treated at once on general surgical principles, and all pus evacuated, and the diseased parts removed.

When facial paralysis has occurred in the course of a suppuration of the middle ear, we should lose no time in removing the pressure or ulceration which has caused it, and after this has been done, the interrupted galvanic current should be applied daily to that course of the nerve affected; massage of the affected muscles will also be of great benefit, and the internal administration of strychnia in full physiological doses will hasten our cure. When a secondary labyrinthine involvement be present, the internal administration to the patient of philocarpine muriate will often bring about a happy result. Potassium iodide and strychnine have also been used with markedly beneficial results in this condition.

When the discharge has ceased in a certain number of cases, we find the hearing much worse than while it was present. Upon inspection these cases show destruction of a large portion of the drum membrane, and the ossicles bound down by adhesions. We can often succeed in effecting a decided improvement in audition by dividing these adhesions, a procedure which can be quite easily carried out, after the discharge has ceased. When our suppurative condition is dependent upon, or complicated by syphilis or tuberculosis, the appropriate treatment for these conditions should be carried out aside from the local treatment of the middle ear.

As a word of warning in all cases of chronic suppuration of the middle ear, where necrosis of the bone is found upon our first examination, it is our duty to inform the patient of the danger to life if this condition be allowed to exist without removal of the diseased bone.

One word more and I shall have finished, and that is, in the cases coming under our observation for treatment during the earlier stages of this disease, we should never lose sight of the fact that they need a general and systemic building up in order that the local condition may improve the more rapidly, as it certainly will under properly directed treatment.

62 West Fifty-second Street.

MEDICAL PROGRESS.

SURGERY.

Simplification of the Suture in Murphy Button Work.—The purse-string suture so commonly used to apply the intestine about the collar of the Murphy button is not always easy to insert and tie, and moreover, requires considerable time. The following simplification of this method, which succeeds well, is offered by F. REHM (C'blatt f. Chir., Nov. 29, 1902). First, as to entero-anastomosis, the gut is incised so that the length of the cut corresponds fairly well with the size of the button, which is then passed through it into the lumen of the intestine, and carried fairly forcibly against one angle of the wound, while the other angle of the wound is closed tightly against it with a couple of through and through sutures. Only one is necessary when the incision has not been made too long. Second, for end to end anastomosis, a Murphy button must be selected which corresponds fairly well with the diameter of the intestine. The ends of the open gut are then seized and the suture is put through and through on opposite sides of the neck of the button, so as to close the opening about it. The author states that the method is very easy of accomplishment, and takes much less time than the other usage.

Removal of Small Metallic Foreign Bodies from the Stomach without External Operation.—Since the introduction of X-rays has rendered it possible to observe the size, position and shape of metallic foreign bodies which have entered the stomach by accident, and since their presence there is a matter of great danger, which is really increased by a laparatomy for their removal, S. MAYOU (Lancet, Dec. 6, 1902) has found it possible to remove them by means of an electromagnet, guided by the X-rays. His device consists of an electromagnet two inches long, cylindrical, five-sixteenths of an inch in diameter, of soft iron at the ends and in the center, wound in the ordinary way, having a lifting power of four ounces, and connected with an ordinary four-volt battery. This magnet

is inserted into an ordinary stomach-tube, with the end cut off, or, preferably, a tube with a perfectly smooth inner surface, so that the magnet may glide up and down with ease by traction on the connection wires. A narrow silver band is placed on the outer side of the stomach end of the tube, so that the end of the tube may be easily seen in the stomach with the X-rays, while the balance of the tube disappears. The tube containing the magnet is next passed into the stomach, preferably under anesthesia. The X-ray tube is placed beneath the patient, who lies on his back over the drum of a couch. The X-rays tube is then excited, and the magnet brought into contact with the part of the foreign body most suitable to draw into the tube. The current is then allowed to flow into the magnet, and the foreign body is drawn into the tube with the connecting wires. When the foreign body is in the tube, as is shown by its having passed the silver ring, the tube, magnet and foreign body are withdrawn together. Various sizes of magnet and tube may be used, to suit the foreign body and the patient's esophagus.

Wounds of the Heart.—A large number of cases in which wounds of the heart have been operated upon have been reported during the past few years and a surprising percentage have entirely recovered. Thirty-seven cases of suturing with various terminations are instanced by L. L. HILL (Med. Rec., Nov. 29, 1902) who also reports an operation by himself upon a stab wound of the left ventricle with recovery. By a review of previous cases he learns that the right ventricle is most frequently injured and the left auricle least so. Auricular wounds are the more dangerous on account of the thinness of the wall. A wound inflicted during diastole is less liable to be serious than a similar injury during systole and those of right heart bleed more profusely than those of the left. The presence of the foreign body in the heart, the size of the wound, its location, the number of wounds, the attending syncope and involvement of Kronecker's coordination center are important factors in determining the outcome. It is found that operation has reduced the mortality from about 90 to 63 per cent. Whenever the location of the external wound and the attending symptoms cause suspicion of a wound of the heart, it is the duty of the surgeon to determine the nature of the wound by an exploratory operation. An anesthetic had better be given and chloroform is perhaps the best. The wound should never be probed for fear of injuring the myocardium. Rotter's operation renders access to the heart very easy and consists of two incisions begun near the sternum and carried along the third and sixth ribs about four inches. A vertical incision along the anterior axillary line then joins the two. The third, fourth and fifth ribs with the pleura are cut through and this osseo-muscular flap is then raised, the cartilages of the ribs acting as hinges. As few catgut sutures as possible should be used, as they cause degeneration of heart muscle with perhaps later dilatation.

General Anesthesia with the Chloride of Ethyl.—Concerning this rather newer anesthetic for the purpose of producing profound narcosis the following principles are set down as accepted by H. GIRARD (Rev. de Chir., Nov. 10, 1902): (1) General anesthesia may be perfectly and completely attained in man, as well as in animals, with the chloride of ethyl; (2) its action is very rapid, and the excitement which it provokes is light and rather infrequent. Its application is usually made without resistance on the part of the patient, and recovery from narcosis by it is almost instantaneous; (3) the facility and suddenness of the awakening demand in practice a special watchfulness and therefore render it difficult to continue the anesthesia for a long time, and especially during an operation of especial importance; (4) although narcosis is brought about in these good circumstances, it is necessary that there should be access of air to the respiratory passages, at least at the beginning, which may then be reduced to a minimum. It is therefore necessary to have a first-class apparatus for giving the drug; (5) absence of actual vomiting or of a tendency to vomit during the hour which follows anesthesia makes it a means of choice for small operations; (6) there does not appear to be any need of looking out for accidents, because the drug is not at all irritating upon the mucous membranes, and therefore there is little danger of the laryngeal reflexes; (7) attention must, however, be paid to the lesions of the kidneys, liver and heart which carry with them anatomical changes. This point must be well understood before this drug is widely employed. The mixed method (in which chloroform and chloride of ethyl, or chloride of ethyl and ether is used) appears to give the best results, by shortening the period of excitement, by diminishing the amount of ether or chloroform consumed, and by opposing the tendency to vomiting at the beginning and end of the operation. There is no doubt that it offers many points of superiority over the more simple methods of anesthesia; (8) deaths which have been observed among animals after the anesthesia has been established, should justly be ascribed to some peculiarity of the respiratory reflex center.

Surgical Treatment of Splanchnoptosis.—An ingenious method of treatment has been resorted to, with good effect, by E. CURTI (Policlin., Nov. 22, 1902). The patient treated was a woman in whom a general splanchnoptosis existed; and from the extreme relaxation noticed in the abdominal wall, Curti concluded that a good deal of the discomfort experienced might be relieved by narrowing it so that it would give greater support to the viscera. This he accomplished, after first anchoring the uterus to the parietes and removing a cystic ovary, by overlapping the two recti muscles and suturing them in this position. The result is said to have been excellent.

Vascular Neoplasms Treated by the Injection of Hot Water.—In order to induce coagulation, thrombosis and subsequent absorption of vascular tumors various injection methods have been employed, but many of them, if successful, are liable to cause marked subsequent scarring from necrosis or ulceration. J. A. WYETH (N. Y. Med. Jour., Dec. 6, 1902) has used water at a temperature between 190° F. and 212° F. as an injection fluid into tumors belonging to all three varieties, viz.: the arterial angioma (cirsoid aneurism), capillary angioma, or "mother's mark," and the venous angioma (cavernous nevus). No accidents have occurred in any of the cases and the results have been very satisfactory. A syringe with a metal cylinder and adjustable piston is used, and under proper aseptic precautions boiling water is injected directly into the tumor mass. The quantity of water and the temperature should vary with the size and character of the growth. In the arterial and venous tumors of large size the needle is thrust deeply into the mass, and from a half to one dram of water is forced out. The needle is then withdrawn an inch or two and the injection continued till the entire tumor is solidified. The water should be hot enough to immediately coagulate the blood and the albuminoids of the tissues, but it should not be forced in so hot or under such pressure as to scald and produce necrosis. When a slight bleaching of the skin occurs the injection should be stopped. In treating the capillary nevi upon the face a small instrument with a deli-

cate needle should be used and water a little below the boiling point is preferable. Not over two to six minims should be used in a single puncture, and the treatment should start from various points at the periphery and be closely watched for several days before being repeated.

Removal of Artificial Teeth from the Alimentary Tract.—The prominence recently given by the lay press to accounts of an operation for the removal of a dental plate which was supposed to have been swallowed but after the death of the patient was found in his room, is now followed by a timely report on the case by the attending surgeon, G. W. CRILE (Cleveland Med. Jour., Dec., 1902). The patient stated his firm belief in having swallowed the plate, which was supported by the statement of the physician who first examined him. The urgency of the symptoms and the failure of esophageal exploration by instruments prompted immediate operation. An X-ray examination apparently demonstrated the teeth at the level of the superior internal angle of the scapula. Gastrotomy was done, also an esophogotomy, but the pharynx, gullet and stomach were readily demonstrated to be free and clear. Meanwhile another search revealed the teeth in an obscure portion of the patient's room. Death from exhaustion came on about 15 hours after the operation. The autopsy revealed an extraordinary degree of calcification of the larynx, particularly the posterior wall and cornua. There was marked atheroma of the arteries, the arch of the aorta being very dense and affording a shadow in the X-ray examination, which was readily misinterpreted. The case is believed by the author to be unparalleled in the extraordinary sequence of corroborative evidence. He thinks that the teeth were undoubtedly swallowed, but ejected unnoticed during a coughing paroxysm. The patient continued his struggles, believing they had not been dislodged, and mistook the hyoid bone for the plate. The writer has collected 149 cases of this character from the literature, and believes that the experience of many surgeons shows that exploration with the various sounds is an uncertain means of diagnosis. The X-rays must be classed among the accessory means of diagnosis, but are not infallible. Doctors and patients have often mistaken the cornua of the hyoid bone and the framework of the larynx for artificial teeth. Teeth have often been swallowed without the patient's knowledge. The mortality rate for the non-operative treatment is three times as high as for the operative, and each day of delay increases the danger. The author concludes, considering even his own experience that on diagnosis, prompt removal with or without surgical intervention is indicated.

Traumatic Rupture of the Spleen.—The treatment should always be operative, either splenectomy, suture or tampon. It has been found that removal of the normal spleen causes but slight, if any, changes in the organism. There is occasionally a little glanular swelling and a moderate anemia. Concerning the ordinary methods of treatment, the following is offered by D. U. EISENDRATH (Ann. of Surg., Dec., 1902). He says that the experience which he has had demonstrated that it is almost impossible to suture a laceration of any extent, so that one must resort either to tamponing the tear or to removal of the spleen. It is advisable to tampon the tear if located on the convex surface or one of the borders and does not extend very deeply into the parenchyma, but this is contraindicated if the tear is either deep at this place, or there is extensive pulpefaction of the spleen, or, lastly, if the tear involves the hilus of the organ. Under these conditions it is far safer to perform splenectomy. At the time of operation one should have a clear conception of whether the force was circumscribed or diffuse, and an effort at a fairly accurate diagnosis of the viscus injured must have been made by the operator before opening the abdomen. When the abdomen is opened and reveals an extensive intraperitoneal hemorrhage, the chief source of this—liver, spleen and kidney—must be looked for in the order named. Digital compression of the splenic vessels will check the hemorrhage temporarily, until the location of the tear and mode of procedure can be decided upon.

Acute Appendicitis.—Passing over the various points in the treatment of this disease, a point not sufficiently elucidated is that of some of the extraordinary complications, of which the chief three are shock, vomiting and flatulent distention. The last of these is the most uncommon, and perhaps the most dangerous. In the opinion of C. B. LOCKWOOD (Lancet, Dec. 13, 1902) the management of this undesirable phenomena is as follows: When flatulent distention is present at the time of operation, the question of enterotomy and evacuation of liquid feces and gas has to be entertained. The author's experience of incising and emptying the intestines for distention due to appendicitis leads him to consider the expedient a safe one. He has not yet seen the apertures leak into the peritoneal cavity. Experience may decide that in some cases the incision into the intestine ought to be sewn to the abdominal wall to act as a safety-valve for a few days. Such openings close, provided there is no occlusion of the intestine beyond. The flatulent distention which follows the operation may be met by the skilful use of enemas and by calomel or even croton oil. He has not yet tried the introduction of aperients into the cecum through the stump of the appendix, or through an opening made for the purpose. It seems to him better to avoid anything which might injure the cecum, and he confesses to a certain antipathy to the introduction of syringes and purgative solutions into the field of operation.

THERAPEUTICS.

Treatment of Tuberculous Cutaneous Ulcers with Balsam of Peru.—The curative power of this remedy is shown in ten cases of tuberculous ulcers of the skin, which had resisted all other treatment, reported by G. SILVA (Rif. Med., Nov. 29, 1902). The balsam was simply painted over the lesion and a dry, aseptic gauze bandage was then applied. The author attributed the curative value of the remedy to its slightly irritating, antiseptic and protective qualities.

Hypodermoclysis with H_2O_2 in Asphyxia.—The advantages of this method of treatment over endovenous injections of oxygen are set forth by G. CAMPANELLA (Gazz. Osped., Nov. 23, 1902) who holds that the latter are not devoid of the danger of producing gaseous emboli, and the special apparatus necessary makes their administration inapplicable in the majority of cases. The author believes that the danger attributed to H_2O_2 from its oxidizing action in the presence of acids and from its reducing power in the presence of alkalies, is much exagerated. Fhenard demonstrated its presence in the air and water; Wurster found it in saliva, milk, perspiration and wherever the vitality of the protoplasm was greatest. Schönbein states that H_2O_2 is not only formed in the organism, but has an important function in the processes of oxidation. And if it is true, as has been stated, that the decomposition of this substance when brought in contact with living protoplasm or in the blood-vessels, produces symptoms of poisoning, with dyspnea and asphyxia, such effects are obviated through its hypodermic administration; either because it decomposes more slowly, or decomposition

does not take place and its excess of oxygen is utilized by the methemaglobinuric blood of the venous radicles. That venous blood does reduce peroxide in vitro has been demonstrated through the arterial color produced by its addition to such blood. Its power to overcome asphyxia has been proven by the author through its injection into animals experimentally asphyxiated; those so treated recovering after repeated hypodermoclysis with H_2O_2, at intervals of five minutes; 50 c.c. being used in all. Asphyxiated animals who did not receive the injections succumbed within a short time.

Cancer of the Larynx Cured by the X-Rays.—The efficacy of the X-rays in the treatment of malignant disease, when located on the surface, so as to be directly influenced by the rays, has so often been attested, says W. SHEPPEGRELL (Jour. Adv. Therap., Dec., 1902), that its benefit is no longer disputed. When the malignant disease is situated below the surface the rays are not so beneficial. Still many physicians have noted the relief from pain, even where no other benefits could be observed. Actual improvement in such cases has been of such rare occurrence, even after long and patient treatment, that the outlook thus far has not been considered encouraging. The author's success in one case has been such that it is advised that further trial be given the proceedure. In April, 1902, the writer was called to see a patient who had a cancer of the left wall of the larynx involving the left vocal cord. Operation was advised, but as a cure could not be assured, the patient refused to permit it. It was proposed that the X-ray should be given a trial though the present knowledge of unfavorable results was made plain to the patient, the experiment was decided upon. On June 9 the first exposure was made with a tube of moderate vacuum. The glands were not involved. The first exposure was made for ten minutes and continued for 20 treatments, given every other day. At the end of the third week the case did not appear encouraging. After the twentieth application the patient was sent to his home, with instructions to report 10 days later, it being understood that unless some marked benefit from the treatment could be demonstrated by that time no further effort would be made to continue the treatment by the X-rays. After the patient returned to his home, he seemed to have a very severe time and it was thought that he would die. July 24, the patient returned to the writer's office and it was discovered that the whole mass that had projected into the lumen of the larynx had disappeared, including also a large portion of the left vocal cord, which had been involved in the malignant process. All difficulty of respiration and cough and also the pain had disappeared. The expectoration was still present, but had lost its purulent character, and was mucous, only occasionally streaked with blood. The treatment with the X-ray was at once recommenced and continued for 10 days longer, at which time the ulceration of the larynx had completely healed. October 25, 1902, the patient was in such excellent condition that no treatment was considered necessary, and the patient was told that there was a reasonable belief that a cure had been effected. The use of the voice had been restored, by employing the lower chest tones. The patient has resumed the practise of his profession which is that of a lawyer.

X-Rays in Cancer and Lupus.—All the diseases treated by the X-rays prove conclusively that there is a degeneration or destruction of the malignant tissue, whether superficial or below the surface. A. R. RAINEAR (Jour. Adv. Therap., Dec., 1902) believes that when below the dermis, the neoplastic cells are destroyed and eliminated, while the healthy skin remains in a normal condition. When the malignancy is in the dermis or epidermis, destruction will occur at that part only, with a resultant healthy scar. Malignant growths of a low type of vitality are especially susceptible to the action of the X-rays. The electrotherapist will more likely be consulted early, as the patient has not the fear of this sort of treatment as he would have of the knife. No theory has as yet been advanced which will explain the real action of the X-ray. The unfavorable results may be caused by the lack of proper knowledge of the appearance of the skin while the case is under treatment. The therapeutist should be aware of the exact time when the proper state of bronzing has taken place so that he can hold up in the application of the rays. Carcinoma of the breast and large epithelioma of the face require the least amount of care in the application of the treatment. X-ray burns are brought about by the following facts: (1) Too long exposure; (2) intensity of the current in the tube; (3) the quality of the tube, whether hard or soft; (4) proximity of the tube to the flesh; (5) local and constitutional condition of the patient. Among the advantages that the Roentgen ray has over all other plans of treatment in malignant growths, may be mentioned: (*a*) The X-rays have a specific action upon the malignant structures and those of a low vitality; (*b*) the X-ray exposures are painless; (*c*) they leave exceedingly small scars; (*d*) can be used in surgery where operation would cause a large uncovered area or a bad disfigurement; (*e*) the percentage of cures is greater than, or equal to, where surgical measures are employed; (*f*) there is no loss of blood to cause weakness and exhaustion; (*g*) the avoidance of an anesthetic, with its attendant annoyances and dangers. The choice of the instrument for excitation of the tube is a static machine of medium size, having 12 to 15 plates, varying from 28 to 32 inches in diameter, the speed ranging from 300 to 500 revolutions. A hard tube is the best for deep-seated cases, and a medium or low tube better adapted for superficial diseases such as, epithelioma, lupus and rodent ulcer.

Electricity as a Therapeutic Agent.—The therapeutic application of electricity is similar, if not identical, to the therapeutic application of other agents, says F. B. BISHOP (Jour. Adv. Therap., Dec., 1902). Blood-pressure may be relieved in many instances, and bounding heart quieted by a moderately strong current, graduated according to the susceptibility of the patient. Four milliamperes are about all that can be safely used in the region of the cervical ganglia. In giving strong and powerful medicines it is customary to dilute a great deal in order that the stomach may bear them and at the same time more readily ingest them, so also, in consequence of the well-known law of conduction and resistance, if we wish to give a strong galvanic current we dilute our current, as it were, by increasing the area of contact electrodes, because "the resistance of a conductor is directly proportional to its length, and inversely proportional to the area of its cross-section." After many years of experience the writer has come to the conclusion that the electric current should but rarely be used as a stimulant, as stimulation is followed by a bad period of reaction. When we consider the subject of static electricity we are considering therapeutic possibilities beyond our ken; we are simply in the dreamland of electrotherapeutics. Some patients are sensitive to the static currents and are made quite nervous from fear thereof; but after a while become accustomed thereto and take static modalities with great benefit. Conversely, the static current may sometimes be very beneficially used when the direct current is either not well tolerated or cannot effect a cure.

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ORGANIZATION BY CITIES AND COUNTIES IN THE CAMPAIGN AGAINST TUBERCULOSIS.

THERE is need of a "third party" in the United States; its aim should be social and sanitary, not political; "No Tuberculosis" is the motto which should be inscribed on its banner, and its policy should be local organization for the home prevention of the great white plague.

The critical struggle against tuberculosis began with the discovery by Koch of the tubercle bacillus; to-day governments, medical societies, voluntary organizations of laymen, and individuals are enlisted in the fight for health; but it is clear that that large measure of success for which all of us hope cannot be won without a wider extension of systematic effort. In the United States the minds of hygienists and the public are now ripe for the inauguration of means for the really efficient general control of tuberculosis. The first indispensable step is the organization of the entire country by cities and counties, and for this system of organization we now earnestly plead.

The public prints of late have widely advertised the proposals to establish hospitals and sanatoria for the isolation and treatment of advanced and incipient cases of tuberculosis. Too much stress cannot be placed upon this feature of the great work for the protection of the public health. Hospitals and sanatoria are a crying need, especially in all great cities, where overcrowding is prevalent and where poor and destitute invalids abound. And yet there is great danger that in the exclusive advocacy of this much-needed reform many who are struggling for the betterment of the health of the community will exhaust their resources and will fail to enlighten the public concerning primary and essential measures for the general prevention of tuberculosis. The local organization which is needed is not one which will limit its work to the foundation of a hospital or sanatorium, but one which is prepared to grapple with every phase of the tuberculosis problem. It should be a permanent body, composed of medical men and laymen, with sub-committees to conduct special lines of work such as investigation of local conditions, education of the public, hospital and dispensary supervision, relief of indigent consumptives, sanitary reform in tenement-houses, workshops and schools. It has been well said that each county can solve its own tuberculosis problem at home; it can and must do so, but if sanatoria alone are relied upon failure is inevitable.

The establishment of sanatoria in Germany for cases of incipient tuberculosis occurring among the working-classes was described by Prof. Brouardel as a "novel and momentous experiment in social polity." We shall not be content in this country even with so momentous a step. The prohibition of expectoration is useful in sanatoria, but would it not be equally salutary at home? Sanatoria furnish model conditions of good food and good air; the approximation of these conditions in the home life of the least fortunate classes must be our constant aim. In sanatoria and hospitals cases of tuberculosis are recognized and sufferers are taught to avoid actions which would constitute a menace to others; universal protection demands compulsory notification of private cases and general education as to the communicability of the disease. Rest is an important therapeutic measure; but it may be possible to obtain rest without an expensive and exhaustive journey to a distant sanatorium. Overcrowding is not tolerated in a sanatorium; shall we accept it as a necessary evil elsewhere, or shall we declare that, whatever the cost, this danger shall be abolished? These are a few of the things that city and county organizations should keep in mind. Nothing less will suffice than the consistent application everywhere of those principles which scientific

medicine has now formulated, and the partial application of which has already demonstrated the possibility of an overwhelming victory over tuberculosis.

The scheme adopted by the Charity Organization Society's Committee on the Prevention of Tuberculosis will serve as a model for local organizations elsewhere. The main objects of this committee are (1) research into the social as distinct from the medical aspects of tuberculosis; for example, into the relations between disease and overcrowding, infected tenements, and unhealthy occupations; (2) the promulgation in every possible way of the fact that tuberculosis is a communicable and preventable disease; (3) the encouragement of movements for suitable public and private sanatoria for both advanced and incipient cases; (4) the relief of indigent consumptives by the provision of suitable food and medicines, by the payment of rent when necessary to secure adequate light and air, etc. This work is to be carried on permanently, not only for the benefit of consumptives, but for the sake of the community as a whole. We are glad to notice that at Scranton, Pa., a movement has been begun with similar objects. Thanks to the initiative of the Lackawanna County Medical Society, which has subscribed $500 for the purpose, there has been organized a medico-lay Society for the Prevention and Cure of Consumption. This society will establish a sanatorium, will open dispensaries for the treatment of lung diseases in the poorer districts of the city and will provide visiting nurses for poor patients who do not care to go to or cannot be accommodated in the sanatorium. A municipal laboratory is recommended and will probably be established. The urgent need of this work in Scranton is apparent to those who are acquainted with the mortality statistics of the city, for a study of these statistics shows that nearly one-third of all deaths occurring between the ages of fifteen and sixty-five are due to tuberculosis.

It is an old political axiom that "as New York goes, so goes the country." The sentiment of this community to-day is unmistakably "anti-tuberculosis." Scranton has wisely adopted the same sentiment and policy, and we look forward with confidence to its further adoption, city by city, and county by county, in every State in the Union.

THE ARMY CANTEEN.

AS WE have already intimated in the MEDICAL NEWS, the abolition of the army canteen was a measure that was not in line with the best of sound medical legislation.

The question whether or not a soldier should be permitted to drink alcoholic beverages under the "official sanction of the government," as we pointed out, was irrelevant. The larger questions of sexual morality and physical immunity from contagious disease we believed to be infinitely more vital and that the army canteen had proven itself a means for salvation from these evils, vastly more deadly and far-reaching than the ills of alcoholism, has been most amply demonstrated.

It is a subject of sincere congratulation then that much of the sentimentality that has obscured the issues in the past is to be brushed aside and that Secretary Root has transmitted to Congress a series of reports made by army officers upon the operation of the anti-canteen law. These, as we have already noted, have been unanimously in favor of the return to the old system.

It may be noted that in most of these reports the question of alcoholism alone is touched upon and the evidence is practically unanimous that for the feature of drunkenness alone the closing of the canteen has been responsible for its enormous increase. When the added evidence on the question of the increase of venereal disease is taken into consideration it becomes an imperative duty on the part of Congress to repeal an enactment that aids in the moral and physical degradation not only of the army private but of the entire body of the citizens of this country, both male and female, for the sailor and the soldier are moving foci of infection that stalk about ruthlessly devastating the land.

SANITATION AND THE ISTHMIAN CANAL.

AT a meeting of the American Association for the Advancement of Science on January 2, a resolution was adopted directing the attention of President Roosevelt to the sanitary aspects of the construction of the Isthmian Canal, and suggesting the appointment, as a member of the Canal Commission, of a medical man familiar with tropical diseases. To this resolution we desire to add our hearty endorsement; and we feel sure that it will have the unqualified approval of all whose information and intelligence enable them to foresee the grave loss of life and waste of energy, and money which, in the absence of skilled and energetic sanitary control, inevitably will accompany this great engineering project.

In the light of recent sanitary achievements in

Cuba even laymen must recognize the value of the cooperation of medical men in the administrative control of such a community of workingmen as will gather along the route of the Isthmian Canal. At the Isthmus the greatest sources of danger are, fortunately, pernicious malaria and yellow fever—we say fortunately, because while, uncontrolled, these scourges have lost none of their fearful virulence, they are no longer capable of striking such terror in the hearts of enlightened sanitary officials as before the discovery of the scientific means for their control.

The sanitary problem has been characterized as the most serious one connected with the construction of the canal. It is inconceivable that it will be overlooked by the President or by any commission which he may name; but the precise degree of importance attached to it is of serious consequence. There are two practical ways in which this importance should be recognized: first, by requiring on the part of the official to whom sanitary control is entrusted, a wide experience in the application of measures for the restraint of communicable, and especially tropical diseases; and second, by placing this official in a position of such high authority as to ensure deserved attention for sanitary measures throughout the period of construction of the canal.

We understand that Gen. Wood is mentioned as the probable head of the Canal Commission. We do not believe a better appointment could be made. The appointment of Gen. Wood, however, could scarcely be regarded as meeting the recommendations of the American Association for the Advancement of Science. Gen. Wood's high duties of late years have somewhat removed him from the details of sanitary inspection and control. His appointment as head of the Commission, if it is to be made, should therefore be supplemented by placing on the Commission a medical man possessing the indispensable qualifications already mentioned.

To begin the construction of the Isthmian Canal without adopting every possible precaution against preventable disease would be to sacrifice the good name our government has recently earned for its wisdom in such matters. Let us build a trench to bear the traffic between the two oceans, but let us avoid, if we can, the sad necessity of digging a companion trench in which to hide the bodies of countless victims of preventable disease. To find the man who will perform this public service, and to secure his consent to serve as a member of the Isthmian Canal Commission, is a duty which cannot fail to commend itself to President Roosevelt. On him falls the responsibility; his is the opportunity.

ECHOES AND NEWS.

NEW YORK.

Uncinariasis.—On Saturday evening, January 17, at 8:30 P.M., at the Medical Library Building, 1313 Bedford Avenue, Brooklyn, Dr. Charles Wardell Stiles, of the Marine-Hospital Service, will deliver an address (illustrated) under the auspices of "The Medical Club of Brooklyn" on "Hookworm Disease (Uncinariasis): A Newly Recognized Factor in American Anemias."

Municipal Civil Service Examiners.—Public notice is given that an open competitive examination will be held for the position of Hospital Physician (fourth grade), annual compensation of $1,200 or less, on Thursday, January 22, 1903, at 10 A.M. The receipt of applications for this examination will close on Monday, January 19, 1903, at 4 P.M.

The scope of the examination will be as follows: Technical knowledge and experience.—Candidates will will be required to obtain 75 per cent. on the technical paper. This examination is being held in order to fill a vacancy of Resident Physician in the Workhouse on Hart's Island, Department of Correction. The compensation attached to this position is $900 per annum with maintenance. Persons securing a place on the eligible list as a result of this examination will also be eligible for certification to other departments in the city requiring the services of physicians. Applicants must be residents of the State of New York. Further information may be obtained by addressing the Secretary of the Municipal Civil Service Commission. S. William Briscoe, secretary.

PHILADELPHIA.

St. Agnes' Hospital to Be Enlarged.—Improvements costing $200,000 are planned for St. Agnes' Hospital during the coming spring and summer. The hospital has long been in need of wards for children and for isolated cases, a thoroughly equipped operating room and a nurses' home. A new wing 150 feet long and three stories high and three additional buildings are contemplated.

Annual Addresses of State Medical Society.—The following are the appointments for the annual addresses to be delivered at the meeting of the Pennslyvania State Medical Society at York: In Medicine, Dr. Henry M. Neale, Upper Lehigh; Surgery, Dr. William L. Estes, South Bethlehem; Obstetrics, Dr. John G. Clark, Philadelphia; Hygiene and State Medicine, Dr. Seneca Egbert, Philadelphia; Neurology, Dr. Charles B. Mayberry, Retreat; Ophthalmology, Dr. Edward B. Heckel, Pittsburg.

A Million to Fight Tuberculosis.—The announcement is made that Henry Phipps, of New York, will establish in this city an institute to be known as the Henry Phipps Institute for the Study, Treatment and Prevention of Tuberculosis. It is proposed to erect buildings costing at least $200,000 and to endow the institute with $1,000,000 or more. The director of the institute is to be Dr. Lawrence F. Flick, well known by his untiring efforts in behalf of poor consumptives. The institute is to be modeled somewhat after the Pasteur Institute of Paris but devoted exclusively to the study and treatment of con-

sumption. A later phase of the question is that relating to the State law, prohibiting the erection of hospitals in built-up portions of cities. Dr. Flick is reported as saying that he will ask the Legislature to repeal the law or amend it. If this is refused the institution will be erected in New York where no such law exists. The statement is made that Mr. Phipps will not spend a dollar on the hospital until the action of the State is determined. The man who originally introduced the bill states that Philadelphia now has enough hospitals, as a number of them would not exist a week were it not for the State support received.

Lackawanna County to Fight Consumption.—The Lackawanna County Medical Society has lately begun an active compaign against tuberculosis that promises to yield excellent results. Resolutions passed by the Society demand a bacteriological laboratory for the city, compulsory registration of cases of tuberculosis, home instruction to patients regarding sputum, hygiene, etc., and a sanatorium for the treatment of early cases. To this end, the unanimous opinion of the Society is that the scope and equipment of the Bureau of Health should be so increased that it can take active efforts as above outlined.

Substitution in Medical Examinations.—Evidence obtained by the State Medical Examining Board points to the fact that two or three of the candidates at the recent meeting of the Board in this city were represented by substitutes. Investigation has been instituted and if sufficient evidence be obtained, a special meeting of the board will be called for the purpose of dealing with the offenders. Several members of the board have expressed themselves as being in favor of a photographic system to prevent such fraud being practised. One member would have students photographed when they matriculate and again when they graduate.

Multiple Neuritis Probably Gonorrheal in Origin.—At the meeting of the Section on Medicine of the College of Physicians, January 12, Dr. William G. Spiller exhibited a young man whom he believes to be suffering from the above affection although there are some points in the case that are not thoroughly understood. The patient contracted gonorrhea in December, 1901. A few weeks later swelling and pain in the joints began, involving in succession the left knee, right shoulder, left ankle, and also the glands of the groin. In July, 1902, difficulty in walking was noticed and in December weakness of the upper limbs began. All voluntary movements of the lower limbs are now much impaired, there is numbness of the toes, and sharp pains all over the body except the trunk. There is marked tenderness of the muscles of the calves and over the left popliteal nerve. A remarkable point is that the knee-jerks are much exaggerated. There is no disturbance of micturition and no signs of cerebral involvement. There is a vague history suggesting syphilitic lesion at the time the affection began but this is not considered probable. Even if it were syphilis the case would be a rare one, as syphilitic multiple neuritis is exceedingly uncommon. The possibility of cord involvement is admitted. Rest in bed, mercury, the iodides and salicylates have wrought much improvement.

An Interesting Cardiac Lesion.—Dr. J. C. Wilson exhibited this patient, a man of fifty-five years. The points emphasized were: (1) The lesion dates from an attack of rheumatic fever during March, 1902. It is interesting that the first attack, followed by endocarditis, should have occurred after the man had passed the age of fifty; (2) the existence of an endocardial murmur that a few weeks ago could be plainly heard at a distance of more than one meter from the patient's body. The patient described the murmur as a grunting sound and this was the condition that brought him to the clinic, no other symptoms being present; (3) the most extensive precordial thrill ever felt by Dr. Wilson is present; (4) the pulse tracing has a rather remarkable square top and there is pronounced tracheal tugging. The man has no pain or other physical signs of aneurism in addition to the one noted, but this condition, as well as that of aortic insufficiency, is believed to be present.

An Early Case of Osteitis Deformans.—This case was also reported by Dr. Wilson in order to put on record the case while only one bone is involved. The patient is a female, aged fifty years, who has marked pain and tenderness in the right thigh, this condition dating from a trifling illness during the summer of 1902. The thigh is considerably swollen. There is no pain or enlargement of any other bone. It is especially noteworthy that there is no evidence of hyperostosis cranii. Skiagraphs show an evident thickening of the lower part of the femur accompanied by forward bulging. The case is of interest because of its rapid development, the involvement of a single bone and the presence of marked pain.

Obituary: Dr. Bushrod W. James.—Dr. Bushrod W. James, the well-known homeopathic physician and author, died at his home in this city January 6, aged 67 years. He was prominent in homeopathic societies and was an extensive traveler, two of his books being written on Alaskan topics.

CHICAGO.

For State Medical Board.—Governor Yates, in his biennial message to the Legislature, has the following to say in regard to a State Medical Board: "A proposition to create a State Board of Medical Examiners has been under consideration by the board of medical men generally since 1897, when the secretary of the board, in his report, expressed the opinion that there was imperative need for an examining board which would leave the State Board of Health free to perform sanitary duties alone. In 1899 the State Board of Health gave its formal endorsement to a bill creating a State Board of Medical Examiners, and this measure has received the approval of representative medical societies of the State. I feel constrained, in view of the circumstances, to recommend the legislation desired in this particular. Necessarily, the duty of enforcing the law, and such rules and regulations as may have been adopted by the Board, now falls on the Secretary, who is the executive officer of the Board.

State Care of Consumptives.—By joint resolution the Senate and House of the Forty-first General Assembly directed the State Board of Health to investigate the advisability of establishing a State sanatorium for consumptives and report to the governor before January 1, 1903. By this report it was shown (1) that tuberculosis is the cause of one-seventh of all deaths; (2) that it is estimated that over 8,500 persons die annually in Illinois from tuberculosis; (3) that tuberculosis is a preventable disease; that while there is no infectious disease which causes such disaster in the human family, there is none which is more easily prevented. (4) That tuberculosis is a curable disease, especially in its earlier stages. (5) That patients suffering from tuberculosis, especially

those of the poorer classes, cannot be properly cared for at their homes, and that the State for both humanitarian and economical reasons should care for the consumptive, and should prevent him from endangering the lives of those about him. One institution seems imperative. Governor Yates recommends the construction of such an institution,—the size and expense to be according to the judgment of the members of the State Legislature.

Notes on Plague as Observed in Sydney, New South Wales.—Dr. G. Frank Lydston read a paper on this subject before the Chicago Medical Society, Jan. 7. The author stated that the city of Sydney has had two epidemics of plague, the first in 1900, and the second in 1902. The latter epidemic was over before his recent visit to Australia. The Sydney epidemics gave the only opportunity the world has thus far experienced for the study of plague among civilized white people under modern scientific conditions by men fitted by experience and laboratory technic to make observations of true value. The author obtained much of his information regarding the plague from Dr. Ashburton Thompson, President of the Sydney Health Board. The first epidemic comprised 303 cases, 293 whites and 10 Chinese. The mortality was a little less than 34 per cent., but the mortality rate among the Chinese was 80 per cent. This race seems comparatively nonresistant to the disease. The 1902 epidemic comprised 141 cases. The proportion of Chinese and the mortality rate were not widely different from the 1900 epidemic. The origin of the plague was probably Hong Kong via Noumea, New Caledonia. The method of transmission was mentioned. The study of plague in Sydney has established the fact that the bubonic and septicemic forms, at least, are not catching. That this is not true of "primary plague pneumonia" is probable, and great caution is to be observed here. The bubonic type was the prevalent one in Sydney, a few cases only of the septicemic form being noted. The patients were treated at the hospital with Yersin-Roux anti-plague serum, and the contacts were inoculated with the Haffkine prophylactic serum if they so desired. In regard to these serums, the conclusions drawn by the health board are: (1) That the value of the prophylactic serum is doubtful; (2) that the use of the prophylactic serum is attended with obstacles which make it almost impracticable, irrespective of its intrinsic merits; (3) that the Yersin-Roux serum is also of doubtful value as a specific. Its action as a temporary reviver or cardiac stimulant seems to be demonstrated.

In the first epidemic there were 11,000 preventive inoculations. There was only one fatal case of plague in a vaccinated case. Even this was doubtful, but this experience could hardly be said to prove anything. The prevention of plague seems to be reduced to very simple principles. These are:

1. Prevent rats from getting ashore from vessels by mooring some little distance from the wharf and freshly tarring all ropes, fenders and hawsers which extend from the ship to the wharf. All gangways should be drawn up when not in use. When used at night, gangways and the wharfs should be brilliantly lighted.

2. All ships should be thoroughly fumigated with sulphur or formalin before entry and departure. This is very effective in destroying rats.

3. Great pains should be taken to keep advised of the health of rats in exposed cities. Any unusual movements or mortality among them should be at once reported to the health authorities. Laboratory study should be constant.

4. The number of rats should be kept down, so far as may be, at all times, and especially when cases of plague are found. Fully 50,000 rats were destroyed in Sydney within a few weeks, yet the number of rats were seemingly the same. There are, of course, many sources of error here, and, admitting the apparent fact, a simple explanation would not be far to seek. The equilibrium between the number of rats and the means of subsistence is pretty constantly maintained. A reward was offered for rats in Sydney, sixpence each being finally given. This bounty was too high. Rats breed fast and mature quickly, and it would pay to breed them at that price. Probably this was not done.

5. No matter how remote the chances of contagion, so infectious a disease as plague demands isolation and great care to avoid immediate infection.

6. A general cleaning-up is required in districts characterized by bad sanitation. This is especially necessary because the destruction of scavenger rats demands in all fairness an equally efficient substitute for scavenger work.

7. Fumigation of all infected and suspected premises. If properly done, rats are destroyed at the same time.

It is interesting to note that in 23 cases of plague in Western Australia in 1900, 21 were white and 2 Chinese. Both Chinese, and only one white, died.

Polymazia.—Dr. Wm. Fuller read a paper on this subject. The author stated that an elevation without nipples in the neighborhood of the thorax or axilla should give rise to the suspicion of a mammary gland. After going extensively into the literature of polymazia he reported the case of a married woman, aged twenty-two, pregnant the first time. In May, 1902, she consulted him in reference to small swellings which had made their appearance several months previously in her armpits. The discovery was accidental. They enlarged in size, and became more tender. The patient was instructed to return in a month for a second examination, at which time the real nature of the axillary swellings still remained undetermined. No change was found except a slight increase in the size of the tumor. In the latter weeks of pregnancy, which was terminated Nov. 10, 1902, the left axillary swelling became very full and distended, and resembled in every way the normal breast on that side. During the advent of lactation this condition was greatly intensified, and was more marked than in the normal mammary glands. Pain at this time greatly exceeded that in the other mammary glands, and gave great discomfort to the patient. When the child would suckle at the right breast, the accessory gland upon that side (right axillary) would become soft and flaccid, but a like condition was not seen in the left axillary enlargement when the left breast was emptied. The patient's clothing upon the left side was kept constantly wet, due to a constant oozing from small openings at the summit of the axillary gland. By taking hold of the axillary gland and making moderate pressure, the surface having been well dried, small drops of fluid would quickly accumulate on its surface. This experiment was repeated until satisfaction was complete regarding the source and quality of the fluid. At the end of three weeks the condition, as it existed at that time, was photographed. Two views were taken; each showed fairly well the supernumerary gland in the left side. In order to

verify a diagnosis already quite positive, the essayist resorted to Goldberger's test, removing the hair from the left axillary space and thoroughly cleaning the skin, after which a hypodermic needle was passed directly into the gland tissue, and several drops of a white fluid were withdrawn and placed in a small bottle. A breast pump was used to withdraw milk from the normal mammary gland, which was placed into a second bottle, and the two submitted to a laboratory for examination. It was reported that the fluids were identical. This confirmed the diagnosis. A peculiar point in the author's case is the areola without a sign of a nipple. In the many cases in literature he fails to find but one similar case reported by McGillicuddy.

Are such cases congenital? If not, how do they occur? It seems rational to coincide with some authors, who explain the phenomenon thus: In the process of development, parts of the normal gland have been split off and have separately developed. The cases collected by the author from the literature have occurred above or below the normal mammæ, and near or in the axillæ. It seems natural that mammary glands should appear on the anterior part of the body, be they as high up as the axilla or as low down as the pubes, as such are commonly found in the lower vertebrates, and may occur in the human being.

The Surgical Treatment of Anuria.—Dr. Arthur Dean Bevan presented a paper on this subject before the Chicago Surgical Society, Jan. 5, in which he detailed the history of a case of anuria recently operated upon, with satisfactory result. Total suppression of urine occurs: (1) From mechanical obstruction of the ureter of the single functionating kidney of an individual, the other kidney either being congenitally absent or destroyed by previous disease; (2) from mechanical obstruction of one ureter in an individual possessing two functionating kidneys, with increased intrarenal pressure on the obstructed side, which by reflex nerve action prevents the unobstructed kidney from functionating, the so-called reflex anuria, or, possibly, after a nephrectomy, the involvement of the nerves in the pedicle may produce a reflex anuria; (3) from trauma of both kidneys, which, for a time, or until a fatal issue, is followed by complete cessation of function; also from trauma of a single kidney which apparently by reflex action so affects the uninjured kidney that complete anuria results; (4) from acute nephritis, as sometimes seen in scarlet fever and other forms of septicemia; (5) from certain poisons, as phosphorus, lead and turpentine, ether, chloroform, etc.; (6) from the peculiar condition known as urethral fever, commonly the result of the passage of a catheter or sound; (7) in the polymorphous symptom-complex, known as hysteria, anuria may occur.

The author stated that anuria is a condition, not a disease *per se*, and until the last ten years the condition has been discussed merely as a symptom occurring in a number of diseases, which usually marked a fatal termination, and for which little could be done by the medical attendant. Within the last twenty years, however, so much light has been thrown on the subject by Tuffier, Morris, Naël and others, and so much good has been accomplished by intelligent surgical interference, that to-day the condition of anuria is entitled to be placed in the same class as the condition ileus, as one of sufficient importance to be considered and handled as a surgical entity. After citing briefly several cases gleaned from medical literature, the author presented a classification, namely, (1) obstructive; (2) reflex or paralytic, and (3), non-obstructive or nephritic anuria.

From a careful study of the literature and of his own case, the essayist reached the following conclusions: (1) The clinical importance of recognizing the three forms of anuria—obstructive, reflex, and non-obstructive; (2) The imperative necessity of surgical interference in the obstructive and reflex forms, and its possible value in the non-obstructive cases; (3) That in the first two varieties a rapid nephrotomy on the side of pain, tenderness and muscular rigidity is the operation of choice. If necessary, do not hesitate to make a double nephrotomy; (4) That nitrous oxide anesthesia is probably to be preferred; (5) That time-consuming operations to relieve permanently the obstruction are to be postponed to a later period, after the patient has recovered from the anuria; (6) Operate by the beginning of the third day.

Transplantation of Omentum in the Operative Treatment of Intestinal Defects; a Clinical and Experimental Contribution.—Dr. Emanuel J. Senn read a paper on this subject. The omentum plays a great rôle in the reparative process following traumatic injuries of the abdominal cavity, both in the destruction of microbes and protection of the general peritoneal cavity by reason of adhesions with intestines and the parietal peritoneum. While omentum transplantation is a recognized operation, as a reenforcement of intestinal suture, the author was impressed with the possibility of the use of omentum for directly covering an intestinal defect. Such a pathological condition following a duodenal ulcer, intestinal tuberculosis, gangrenous cecum, the result of an appendicitis, where enterorrhaphy cannot be resorted to, by reason of the unrealiability of the surrounding tissues in withstanding tension, or where suturing would cause too great narrowing of the intestinal lumen; also where the condition of the patient or extensive adhesions would not permit an enterectomy. The omentum has been transplanted over perforations in the stomach, both in experimental work and in man. The essayist, after referring to the work of Bennett, Braun, Tietze, Enderlen and others, reported a series of experiments for the purpose of investigating the possibilities of omental transplantation. The experiments were done under the most favorable circumstances as regards the surroundings for doing aseptic work, but the results were unfavorable. The author stated, however, that the unfavorable results from the experiments are no criterion of the future value of omental transplantation. The omentum in the dog is thinner than in man, and the adipose tissue is not as abundant nor as vascular; therefore, not as favorable for plastic work. The stomach is apparently the most favorable portion of the alimentary tract for omental transplantation. By reason of its fixed position, the gastric movements do not place as much tension on the transplanted omentum as is the case with the peristaltic wave of the intestines. The great omentum in this region is also found near its attachment, which may also be a favorable factor. The experimental and clinical evidence is abundant proof of this fact. The cecum is the most favorable portion of the intestinal tract by reason of its slight mobility. It lies in one of the regions most frequently attacked by pathological processes, and the future will demonstrate the adaptability of omentum for defects which cannot be closed by suture. Resection of the cecum or a lateral anastomosis is a formidable operation, as compared with omental

transplantation. Primary transplantation of the omentum in gangrenous appendicitis will greatly obviate fecal fistula, which so often follows the operation. Until more clinical evidence accumulates, showing that reliable suturing can be done, intestinal transplantation of omentum should not be resorted to unless there is abundant drainage down to the seat of suture, besides walling off the general peritoneal cavity.

The author concludes: (1) Transplantation of omentum over defects in the stomach is an established operation; (2) transplantation of omentum over intestinal defects is recommended, but is still in the developmental stage; (3) transplantation of omentum over defects in the cecum is the most favorable portion of the intestinal tract; (4) transplantation of omentum over defects in the small intestine should only be done after fixation of the segment of the intestine to the abdominal wall; (5) gauze drainage should be resorted to, excluding the general peritoneal cavity.

GENERAL.

Baltimore Personals.—Dr. Leonard K. Hirshberg has been made Director of the Laboratory of Hygiene at the College of Physicians and Surgeons.

Dr. Frank Bayne and Dr. Henry Cassidy have been appointed physicians in charge of the X-ray apparatus at the Maryland General Hospital.

Dr. Francis P. O'Neil of Elmira, N. Y., has been appointed to the residence staff of the City Hospital. Dr. O'Neil is a graduate of the class of 1901 of the College of Physicians and Surgeons.

Bacteria in Ice Cream.—*The Maryland Medical Journal* for January contains the results of researches undertaken in the laboratory of the City Board of Health under the direction of Prof. Wm. Royal Stokes, City Bacteriologist, as to the species and number of bacteria found in samples of ice cream taken from various city dealers. Streptococci were found in great numbers in many cases and pneumococci once. The percentage of butter fat ranged from 1.25 per cent. to 11.25 per cent.

Tuberculosis Commission Will Send Out Inquiries.—The Tuberculosis Commission of Maryland held a meeting last week at the office of the State Board of Health and appointed Dr. Marshall Langton Price medical officer of the association. Dr. Price is a graduate of the University of Maryland, and will have charge of all statistics and general work of the commission under the supervision of the president, Dr. William S. Thayer. The board decided upon several forms of inquiries which will be sent out during the coming week with a view to gathering the statistics in reference to the prevalence of tuberculosis. Among the letters to be sent out there will be one directed to the superintendents of the various institutions in the State of Maryland. The letter is as follows: "The Tuberculosis Commission appointed by act of the last Legislature is making an earnest endeavor to get the best idea possible of the morbidity of tuberculosis in the State of Maryland. We are extremely anxious to obtain reports from all institutions with regard to this point. To this end we have printed a series of blanks, some of which we send to you with this communication. It would be a very great favor to the commission if, for the next year, you could arrange that at the end of each week the returns entered upon these blanks, one for each patient, might be sent to the committee. We feel that in many ways the result of these returns will form a basis for the most important part of our statistical work, and earnestly beg that you will co-operate with us in our investigation during the following year."

The commission has also prepared a number of blanks which will be sent to the medical profession throughout the State asking for information.

Dr. William H. Welch, president of the State Board of Health, has prepared the following letter, addressed to the medical profession of Maryland: "The Tuberculosis Commission of Maryland has permission, under certain necessary restrictions, to use the laboratory and death records of the State Board of Health for the purpose of its investigation. The State Board of Health also commends in the strongest possible manner the work of this commission to the interest and aid of practising physicians. If every physician in the State will, to the best of his ability, answer the few inquiries which the Tuberculosis Commission will make in the next year we shall obtain what all of us feel is a pressing need—an accurate view of the amount and distribution of tuberculosis in Maryland."

Changes in the Medical Corps of the Navy, Jan. 10.—Medical Director E. S. Bogert, retired, detached from the Naval Recruiting Station, New York, and to continue duty at Marine Recruiting Office, New York. Medical Director T. Wolverton, retired, ordered to the Naval Recruiting Station, New York. Assistant Surgeon J. H. Halloway, commissioned Assistant Surgeon from Sept. 26, 1902. P.A. Surgeon J. A. Guthrie, detached from the Yorktown and ordered to the Vicksburg. Assistant Surgeon K. Ohnesorg, detached from the Vicksburg and ordered to the Yorktown. Assistant Surgeon A. E. Peck, detached from the Annapolis and ordered to the Naval Station, Cavite, P. I. Assistant Surgeon U. R. Webb, detached from the Naval Station, Cavite, P. I., and ordered to the Annapolis. Medical Inspector F. B. Stephenson, retired from active service, on account of disability incurred in the line of duty, Jan. 3, 1903, to continue duty at Naval Hospital, Portsmouth, N. H. Medical Inspector S. H. Dickson, detached from the Iowa, and ordered to the Newark as Fleet Surgeon of the South Atlantic Station. Past Assistant Surgeon H. H. Haas, detached from the Montgomery and ordered to the Prairie. Past Assistant Surgeon J. E. Page, detached from the Newark and ordered to the Montgomery.

National Authorities Notified.—A dispatch has been received at the office of the Marine Hospital Service from the Board of Trade at Tucson, Ariz., calling attention to the existence of bubonic plague in Mexico and requesting that necessary steps be taken to prevent its spread into Arizona. The president of the Superior Board of Health of Mexico has officially announced to the authorities in Washington that the plague exists at Ensenada and Mazatlan, Mexico, and has requested the public health and marine hospital service to notify the Bureau of American Republics, that the South American countries through them may be informed. Dr. Grubbs, a medical representative of the public health and marine hospital service, now at Los Angeles, Cal., who has been investigating the situation at Ensenada, and Dr. Alexander, the medical representative at Ensenad have been directed by the Surgeon General to take any action in the matter that may be necessary.

Modern Popular Anatomy.—A rather delicious bon mot in modern anatomical knowledge is given in a New York firm's booklet advertising how to get and retain beauty, to quote: "The occipito frontalis is

attached along the line of the eyebrows and runs back to the brain where it contracts and shortens." "To lengthen the muscles, etc., press firmly and massage." Here is a dash at the physiology of facial nutrition: "When there is too much flesh on the face, all movements must be downward—to put flesh on let the movements be upward." From the commonplace of new anatomy and still newer physiology we leap into the realms of poesy, "the skin and complexion take the velvety touch of the rose leaf and the flush of a June rose."

Obituary.—Dr. Albert Waring Atwater, who died at Burlington, Vt., Jan. 9, was born July 24, 1861, and was graduated from the University of Vermont Medical College in the class of 1885. Soon after graduation he established himself at St. Regis Falls, N. Y., where he practised with marked success up to the time of his last illness. He was unmarried and was the third successive Dr. Atwater whom Burlington has known. His grandfather, Dr. William Atwater, a graduate of the U. V. M. in the class of 1809, practised medicine in Burlington from 1830 to 1853, and his father, Dr. H. H. Atwater, a graduate of the U. V. M. in 1847, was a lifelong resident and practitioner in that city.

Dr. John Allard Jeancon, who served as surgeon of the Thirty-second Indiana Volunteer Infantry in the war of the rebellion, and who afterwards became a noted specialist in stomach diseases, died at his home January 13.

CORRESPONDENCE.

OUR LONDON LETTER.

(From Our Special Correspondent.)

LONDON, January 3.

AN ACT TO MAKE ENGLAND SOBER—INCREASE OF CANCER IN LONDON—PATENT MEDICINES—STATISTICS OF THE MEDICAL PROFESSION IN GREAT BRITAIN—INFLUENZA—THE DURBAR HONORS AND THE DOCTORS.

ON January 1 a new Licensing Act came into operation in England and Wales—not in Scotland or Ireland, which from a legislative point of view have to be separately provided for—which should make for sobriety. It contains several drastic provisions. Thus it is made a criminal offense for any person to be drunk in a public place while in charge of a child under the age of seven. This will prevent scenes such as that represented in Hogarth's "Gin Street," where a baby is shown falling out of a drunken woman's arms. It is made incumbent under heavy penalties on the keepers of public houses to prevent drunkenness on their premises. They are also forbidden to supply drink to anyone who has been convicted of drunkenness within the year. The police will assist the publicans in giving effect to this order by distributing among them the photographs of convicted drunkards which will be printed on special police notices. A very important clause is one providing that in certain cases the wife or husband of a habitual drunkard may be released from cohabitation by order of the justices. An order of this kind is to have the same effect as a decree of judicial separation. It is further made an offense for a habitual drunkard to purchase or attempt to purchase intoxicating liquors at licensed premises or at a registered club; it is also an offense for any licensed victualler to supply liquors to any such person. Another section of the Act imposes a penalty upon any one who procures drink for any intoxicated person. It may be said, in short, that drunkenness is now made a crime in itself, and that drunkards are treated as persons intolerable to society and are, as far as possible, deprived of facilities for obtaining the means of indulging in their vicious habit. It remains to be seen how the Act will work. Already several husbands and wives mated to drunken spouses have sought release under the Act, and the new law is being applied in all its rigor by the police.

The report of Mr. Shirley Murphy, Medical Officer to the London County Council, on the health of London during 1901, was issued on January 1. In ten years the death-rate of London has declined from 21 per 1,000 to 17.1. The total number of deaths in the metropolis in 1901 was 77,663. While the deaths from consumption show a gratifying diminution, cancer makes steady headway. In 1901 this disease claimed 3,982 victims, being at the rate of .93 per 1,000 living, as compared with .78 in 1891 and .42 in 1851-60. The age at which cancer most affects Londoners is indicated by the fact that 398 died at the age of thirty-five to forty-five, 891 between forty-five and fifty-five, 1,124 between fifty-five and sixty-five, 928 between sixty-five and seventy-five, and 394 between seventy-five and eighty-five.

A week or two ago the recipe and trade-name of a patent pill, known as "Dr. King's Dandelion and Quinine Bilious and Liver Pill," was sold by public auction in London for $25,000. The annual profits of the sale of the pill were stated to be $4,500. The British public has in recent years taken largely to doctoring itself with patent remedies of one kind or another. The amount of the stamp duties collected from this source increases every year as the following figures show: In 1897-98 it was $1,304,260; in 1898-99, $1,332,020; in 1899-1900, $1,444,135; in 1900-1, $1,487,400, and in 1901-2, $1,531,685. These figures do not show the full extent of the trade in patent medicines. Generally speaking only the old-established "cures" carry the patent stamp; the newer ones, especially those—and their name is Legion—which come to us from Am rica, are content to copyright the title, thus escaping the excise. It is estimated that the number of patent medicines sold in the United Kingdom every day is quite one hundred thousand. Thirty million three-halfpences are paid every year as a direct tax by purchasers of shilling bottles and boxes and packets of the strange concoctions which declare their virtues from every hoarding in Great Britain. The shilling bottle of patent medicine finds its worshippers in greater numbers than Christianity itself. In a recent year the number of taxes received on these bottles was 29,569,576. There were paid in the same year nearly six million taxes of threepence, and 943,080 sixpences. The shilling tax falls upon another public, and its payers are not quite a hundred thousand, while the two shilling tax was paid in this particular year by only 4,277 purchasers. The Government is not likely to interfere by vexatious legislation with so profitable a source of revenue as patent medicines.

From the statistics that have been quoted and the marvelous virtues claimed for the patent medicines, it might be thought that the doctor's occupation would soon be gone. Yet a glance at *Churchill's Medical Directory* for 1903 just published, shows he too is increasing and multiplying almost as fast as the patent pills. The total number of practitioners on the *Medical Register* this year is given as 37,291, being an increase of 503 as compared with last year and of 5,564 as compared with 1894. Of the total number 6,309 practise in London, 16,422 in the English provinces, 1,186 in Wales, 3,680 in Scotland, 2,641 in Ireland, 2,917 are serving in the Navy, Army and Indian Service, while the rest are scattered over the various colonies, or practise at health resorts on the Continent. These figures make one think of the story of John Abernethy entering the great lecture room at St. Bartholomew's Hospital to deliver his inaugural address one October. On looking at the

benches rising tier upon tier, all crowded with eager students, he was heard to mutter "God help you, gentlemen! What is to become of you all?"

The newspapers state that the prevalence of influenza is decreasing, but I do not believe there is any solid ground for this comforting opinion. It is true the Registrar-General's returns issued a day or two ago show a diminution in the number of deaths, but there is still a large amount of sickness in different parts of the country. In some schools the epidemic has been extraordinarily virulent, but naturally the authorities of such establishments do not proclaim the facts from the housetops. In Clubs, and other places where men most congregate it is almost taken for granted that everyone one meets has had influenza. On the whole, however, so far it has been, at least among the adult part of the population, of a mild character.

The following story should gratify Mark Twain. The Mayor of Southwark, Mr. Tom Bryan, who hopes to make his year of office memorable by instituting some municipal action with regard to the prevalence of consumption, said to an interviewer the other day: "I believe in humor as a cure for consumption, 'Laugh and grow fat,' as the proverb says. Some years ago a friend of mine was very depressed because the doctor had told him his case was hopeless; and to cheer him up I lent him a copy of 'Huckleberry Finn.' He laughed over that book for weeks, and grew better; and since then he has edited a newspaper and done a lot of other hard work. I feel quite sure that Huck Finn saved his life." A curious study might be made of the therapeutic effects of various kinds of literature. In convalescence Mark Twain, Dickens, and other simple humorists may be freely recommended; George Meredith would be to most people too fatiguing in a weak state of health, and "problem novelists" are too likely to raise the temperature.

The New Year is one of the occasions on which the "Fountain of Honor" (one of the official attributes of our gracious Sovereign) is expected to play on the multitude which thirsts for titles and decorations. This year, however, the hydraulic performance in question has been postponed, all the waters of the Royal well being required to slake the parched throats of Indian princes and dignitaries at the great Durbar held the other day at Delhi. There the sparkling showers have fallen in profusion on the just and the unjust. Some decorations have fallen to the medical profession, but the recipients are men whose importance is purely official, and whose services though of the highest value, are so entirely local that their names are for the most part unknown even to their professional brethren at home. A catalogue of them would therefore be of no interest to your readers.

TRANSACTIONS OF FOREIGN SOCIETIES.

British.

CHANGES OCCURRING IN A MAMMARY SCIRRHUS TREATED BY X-RAYS—EFFECTS OF X-RAYS ON RODENT ULCERS—RUPTURED CRUCIAL LIGAMENTS AND THEIR REPAIR BY OPERATION—ABSCESS OF THE LIVER—SALICYLIC ACID AND FOOD—THE PREVENTION OF PULMONARY PHTHISIS, INCLUDING THE NOTIFICATION OF THE DISEASE.

OUR medical and scientific colleagues, assembled together in their various societies throughout Great Britain, in the latter part of November and early part of December, considered the following important subjects:

S. R. SHATTOCK, at the Pathological Society of London, Dec. 2, 1902, reported a case of mammary cancer, which had been treated by X-rays, and made special reference to the changes which had occurred in the growth. The tumor was subjected for about three months to the rays, and clinically underwent diminution in size in addition to becoming more movable on the subjacent parts. Examination after removal showed, however, that no changes could be associated with the treatment, either macroscopic or microscopic. The stroma presented a variable amount of lymphocytic infiltration and contained mast cells and a few groups of Unna's plasma cells. The epithelium, which was of the spheroidal-celled kind, presenting nowhere any necrosis, and the only fatty degeneration of any note concerned the cells of the few mammary lobules still remaining about the edge of the growth. At no part of the margin did the growth cease to extend. The "cancer body" occurred in groups or single in certain of the epithelial cells and the arterioles around and in the stroma were normal. The results of the examination were highly disappointing, for no degeneration of any kind or cell lysis had been induced by the treatment, no phagocytic invasion of the epithelium was in progress, and on every side the growth was in an extending condition; there was nothing in the amount of lymphocytic infiltration, in the mast cells, and in Unna's plasma cells which might not be met with in cases where no treatment had been carried out. The clinical diminution in size of the mass and the loosening of the deep connections were difficult to explain; possibly they were due to the disappearance of a sub-inflammatory edema.

S. MAYOU read a paper on the Effects of X-rays on Rodent Ulcers. He first showed their probable relation to ultra-violet light, and thought that their effects were closely allied to other forms of stimuli. With the exception that their application was painless when applied to healthy tissues, they produced a superficial inflammation which was greatly increased by the application of other forms of stimuli. This was instanced by cases, since he did not think the fact was generally recognized. The dilatation of the vessels of the inflamed part seemed to be permanent in some cases after prolonged exposure. He thought that the rodent cells themselves acted as irritants and showed by sections that the leucocytosis was around these cells rather than in the neighboring tissues. The greater part of the growth (that was to say, the nodular masses) disappeared by sloughing, but the outlying masses of rodent cells degenerated, the degeneration taking place from without inward, toward the center of the clump. The cells becoming vacuolated and the granules collecting around the cell-wall seemed to be making their way through it. The chromatin of the nuclei gradually ceased to take up the stain, leaving only the cell wall, which was subsequently removed by leucocytes. The removal of a small portion of the growth in order to examine it for active rodent cells was found useful in determining when treatment should cease.

A. W. MAYO ROBSON, at the Clinical Society of London, Nov. 28, 1902, made a communication on Ruptured Crucial Ligaments of the Knee-Joint, and their Repair by Operation. The patient, a man aged forty-one years, was admitted into the Leeds General Infirmary November, 1895, for lameness, the result of an accident nine months before, when he was almost buried by a fall of earth and sustained numerous injuries beside the one to the joint in question. When admitted to the infirmary, the right knee was swollen, but it was free from tenderness on manipulation. When the muscles were contracted the bones were in good position, but as soon as the muscles were relaxed the tibia fell backward until stopped by the ligamentum patellæ, and, on manipulation the head of the tibia could be brought forward in front of the femur, there being also free lateral movement of the head of the tibia on the femur.

It was manifest that not only were all the ligaments relaxed, but that the crucial ligaments had been ruptured. On Nov. 21, 1900, the joint was opened by a semilunar incision carried across the front, dividing the ligamentum patellæ. The synovial membrane was found to be inflamed, and there was an excess of fluid in the joint. Both crucial ligaments were completely ruptured, having been torn from their upper attachments, and the ends were shreddy. They were stitched in position by means of catgut ligatures, the anterior being stitched to the synovial membrane and adjacent tissues on the inner side of the external condyle and the posterior, which was too short and was split in order to lengthen it, was fastened by sutures to the synovial membrane and cartilage on the outer side of the inner condyle. The wound was then stitched up by means of buried catgut sutures, and was closed superficially by interrupted silkworm gut sutures. The result was very successful, complete restoration of the normal movement of the joint having occurred. The plaster-of-Paris was removed in a month, after which movement gradually returned under massage. When seen on Oct. 21, 1901, the patient was walking without a limp, and could run, and was working eight hours a day at his old employment. The joint could be extended to the straight line and flexed just beyond the right angle, there being no abnormal lateral or antero-posterior mobility whatever. The author had not discovered any other case in which these ligaments had been repaired.

W. K. HATCH read a paper on Abscesses of the Liver. He said he had had in the Indian military service extensive opportunities of treating this disease, of which, in hospital and private practice, he had seen nearly 1,000 cases. He pointed out that the disease was common enough among natives, and that, although alcohol was a factor, the majority had suffered from dysentery. In discussing the diagnosis he insisted upon the characteristic hepatic odor of the fluid derived from such abscesses. Sometimes percussion gave a resonant note over the abscess, due, no doubt, to the neighboring colon. If situated near the middle of the liver, near the ensiform cartilage, pulsation might be propagated from the aorta, thus complicating the diagnosis. He wished particularly to call attention to the fact that aspiration was attended with considerable danger and ought, in fact, only to be employed when the diagnosis had been established and it only remained to determine the precise locality of the abscess. The danger lay either in puncturing an enlarged and highly congested liver or in wounding a large, hepatic vessel. Dangerous and even fatal hemorrhage might thus be caused, and in some instances from puncture of the vena cava. His practice was to open the abdomen by a two-inch incision, exposing the liver, which enabled him to introduce the cannula with greater safety. As regarded surgical treatment, he thought that incision was certainly the proper treatment, and the earlier the better, though it might be well first, in large abscesses, to draw off part of the pus, making the incision a day or two later, and thus lessening the chances of its becoming septic. He preferred to open between the ribs, rather than below them. He deprecated removal of ribs as being rarely necessary. Even in cases where the abscess contents were being expectorated, he preferred to incise. He never irrigated the abscess cavity unless it became septic. The mortality in hospital practice was high, amounting in some cases to 90 per cent.; in private practice it was only about 20 per cent.

C. J. MACALISTER and BRADSHAW, at the Liverpool Medical Institution, Nov. 20, 1902, contributed a paper on the influence of Small Doses of Salicylic Acid on Digestion and Nutrition, with Special Reference to its employment as a Preservative in Food. Evidence had been given in various courts and in Parliamentary committees, which was of the vaguest description, depending less upon actual observations upon the results of taking salicylic acid itself than upon the results of taking other antiseptics. The writers were strongly of the opinion that the nature and amount of preservative employed ought to be stated on the label. They had found that it was contended that salicylic acid was injurious for three principal reasons: (1) That it was antiseptic and anti-fermentative, and therefore liable to interfere with the digestive processes by destroying the digestive ferments; (2) that after absorption it was apt to injure the general health and to interfere with nutrition; and (3), that it was an irritant, and therefore apt to injure the mucous membrane of the stomach and intestinal canal. They had reason to believe that many who were opposed to the use of salicylic acid on the first ground did not distinguish between true digestion and decomposition. The writers had made numerous experiments on artificial digestion and they found that the presence of salicylic acid, even in saturated solution, had about the same effect in retarding peptic digestion as the same proportion of table salt. In pancreatic digestion of starch, it seemed to have no retarding influence at all after neutralization. In regard to the second objection, one of them had taken five grains of salicylic acid daily for a month without any ill effects upon the health; they had given it to children in fruit juice preserved with it, and they had watched its effects on other persons, and they found that it exerted no recognizable bad effects whatever. As regards the objection that salicylic acid was an irritant to the mucous membrane, they denied that it could possibly be so in any such degree of concentration as it was possible to obtain either in food or in the stomach contents. They maintained that salicylic acid as an antiseptic was of greatest value to the poorer classes in towns, thereby enabling them to obtain luxuries, such as non-alcoholic wines, free from the risk of decomposition, and at a moderate cost, and thus the public were able to obtain cheap, wholesome and agreeable beverages, free from the risk of moral and physical evil which attended the use of alcoholic drinks. They challenged the opponents to bring forth a single instance in which it could be shown that bodily harm had resulted from salicylic acid employed as a preservative, and they denied that it was possible for anyone to be injured by it in the proportion in which it existed in any of the preserved articles which had been brought to their notice.

F. T. PAUL had supported the medical officer of health in his endeavor to check the excessive use of salicylic acid as a food preservative on the grounds (1) That chemical preservatives were undesirable; (2) salicylic acid was a poison; (3) it was unnecessary to preserve the articles in which it was used. The first was an opinion shared by most medical men. The second point had been sufficiently proved at the time that salicylic acid was largely given for acute rheumatism, and referred to a paper he read before the society in 1876. As regards the third, it was admitted by the manufacturers of the fruit juices that they only used large quantities of salicylic acid in order to prevent alcoholic fermentation, and the consequent presence of minute chemical traces of alcohol, repugnant to the teetotaler; otherwise one or two grains to the pint would be sufficient. The other food substance for which salicylic acid was so largely used was bottled fruit, the flavor of which it completely destroyed. Heat sterilization in this case was alone necessary, as he had

proved by numerous experiments. He agreed with other speakers that so small a quantity as one or two grains to the pint was harmless, and need not be objected to if stated on the label.

At a special meeting of the Edinburgh Medico-Chirurgical Society, held on Nov. 19, for the purpose of discussing the means to be adopted in the Prevention of Pulmonary Disease, including the notification of the disease. After the president, Sir Thomas R. Fraser, had indicated the lines on which the discussion should lie, H. H. Littlejohn was the first speaker, and referred to the difficulty of limiting the questions involved. He spoke of the preventive measures which medical men are chiefly concerned with, as contrasted with those which the municipality might adopt. He showed upon the screen several charts and maps illustrative of the general prevalence of the disease and its gradual decline in severity (over 50 per cent.) during the past 50 years, and indicated that general sanitary improvements had caused this reduction, apart altogether from the special measures which they were called upon to discuss. Since 1882 they had known that phthisis was an infectious disease and therefore preventable. It was, however, true, that its infectious nature had only recently been recognized by the general public, who were now loudly calling for preventive measures. It was admitted that the health committee should undertake these preventive measures in the same way that it did for all other infectious diseases. Others, again, argued that the liberty of the individual ought not to be interfered with, or the province of the private medical practitioner invaded. The sanitary authority, however, had no intention of interfering with the latter, but it would rather act by direct attention being drawn by the private practitioner. The idea of compulsory isolation of the patient, and the segregation of scholars or of workmen affected, as was done in the case of other infectious diseases, might be dismissed at once. Rational preventive measures alone would be adopted, and such as were affected on Koch's discovery. If people could be educated to take precautions for their own and others' safety, then they would be allowed to live under very similar conditions to those under which they usually lived. Such precautions could be furthered by (1) allowing the central authorities to know where the cases of phthisis were situated; (2) by the prevention of spitting; and (3) by the provisions of sanatoria for the cure, detention or education of patients, so as to enable them later to live in their own homes. As regards notification, in 1879 Edinburgh got a compulsory Notification Act in opposition to the wishes of the then medical profession, and as a result of the introduction of voluntary notification in 1889 the government adopted compulsory notification for the whole country. The objections to the notification of phthisis were such as the following: (*a*) The great uncertainty of diagnosis (this, however, was cleared up by bacteriological examination); (*b*) that on account of the nature of phthisis cases could not be controlled in the same way as cases of acute infectious diseases were; (*c*) that phthisis was not infective by contact or by the breath; (*d*) that ordinary preventive measures were said not to be required; (*e*) that notification would lead to social ostracism and the phthisical patient being branded as such in many cases would be dismissed from his employment; and (*f*) that the medical attendant would be interfered with. Koch's authority confirmed that compulsory notification was necessary, and what were its advantages? (1) A knowledge of the disease. A disease could not be fought apart from a knowledge of its existence and behavior. (2) A knowledge of sanitary defects which otherwise could not be discovered was obtained, *e.g.*, deficiency of light and ventilation, accumulation of filth, etc., and the dirty condition of houses. (3) It permitted of the education of the patient and of his family. (4) It allowed the sanitary authority systematically to both cleanse and disinfect both the house and patient during the course of the disease, and would so bring help to many who could not otherwise help themselves. Dr. Littlejohn hardly thought that compulsory notification would be adopted, though he should welcome it. Hitherto both the English and the Scotch Local Government Boards had refused to allow pulmonary phthisis to be notified. As regards voluntary notification, it was asked of what use was it, when it would reveal only a part of the incidence? Were the case one of scarlet fever, voluntary notification would be useless, but with phthisis it was very different. The notification of even 50 per cent. would lead to an immense reduction in the cases of phthisis. Even voluntary notification would be of the greatest possible value. Medical men would thus be asked to notify only those cases which they could consistently set apart for that purpose, and these would surely be the worst cases, both in themselves and in their surroundings, and from these the maximum amount of good would be obtained by notification. Dr. Littlejohn narrated the experience of New York, where voluntary notification was adopted in 1894, and with such little success that it was made compulsory in 1897. The good work of Dr. J. Niven, in Manchester, with reference to this disease was also alluded to, and it was shown that of 1,000 cases investigated, 350 could be traced to phthisical relatives either living in the same houses or coming to those houses as visitors. The experience of Dr. Newsholme at Brighton was alluded to, also. Dr. Littlejohn, in conclusion, referred to the futility of placing simple notices against spitting, and to the two kinds of sanatoriums required—(1) for advanced and hopeless cases and (2) for cases capable of recovery—and to the educative value of such institutions.

SOCIETY PROCEEDINGS.

OBSTETRICAL SOCIETY OF PHILADELPHIA.

Stated Meeting, held November 6, 1902.

The President, John M. Fisher, M.D., in the Chair.

(Continued from Page 94.)

Dr. J. T. Rugh had been especially impressed with one feature of the papers: the great variety of causes that act to produce pus in the pelvis. It may be from an internal or from an external cause, and, as indicated by Dr. Norris, the keynote of the treatment lies principally in the diagnosis. He wished to allude a little more fully to one or two points brought up by Dr. Wilson as to the diagnosis of collections of pus in the pelvis from bone lesions. The constitutional symptoms which accompany bone affections and formations of pus complicating them, are not so severe as those which come with infections from other causes. In the first place, the material which results from the destructive process is not pus. It is broken down material or detritus due to the action of the tubercle bacillus, and being without toxins of the pyogenic organisms, it does not give rise to the constitutional symptoms.

Another point is that the bone infection always interferes with function and most profoundly so when pus is present. In the spine cases, there is liability to bend or to stoop, as mentioned by Dr. Wilson. With sacro-iliac disease there is always a limp. With hip-joint disease there is entire ablation of motion at the hip

joint, and these disturbances of the motor functions are of the greatest diagnostic importance, and are easily recognized by an examination of the patient. The pain from bone lesions is mostly reflected pain. At times when the sacro-iliac symphysis is the seat of tuberculous infection there is tenderness on pressure over the thickened area, but in the great majority of cases the pain is reflected along the sciatic nerve and strongly simulates sciatica. These cases are sometimes treated as cases of rheumatism, but careful examination will exclude rheumatic infection because no other parts of the body are so affected, while in rheumatism you would in all probability find other parts involved and less interference with the function of the muscles related to the diseased parts.

Another point is that the tuberculous process is more likely to be lighted up after pregnancy has ceased. During the course of pregnancy, singularly enough, the tubercular process is in abeyance, the patient's resistance being apparently much greater at that period. After pregnancy has ceased, however, there is an accentuation of all the symptoms, and the case generally goes on to an unfavorable ending, unless prompt remedial measures are instituted. He wished to reiterate what Dr. Wilson has said as to the ultimate curability of these cases, that if they are taken in time and proper measures instituted, they almost invariably go on to successful recovery, but if unrecognized, the damage is ofttimes irreparable.

Dr. Charles F. Nassau thought that in regard to the variety of drainage in a case of appendicitis, the more one packs rather than drains, the better is the result. Dr. Deaver's practice of packing off the bowels from the seat of operation to prevent the contamination of the clean peritoneum and then replacing that gauze piece by piece with the drainage material is of great assistance in preventing spread of infection. It was his belief, that, other things being equal, if the bowels are kept away from under the edges of the abdominal wound there is less danger of pulling out a piece of bowel when the gauze is removed. This brings up the question when to remove drainage in these pus cases. Gauze is often taken out too soon. He thought nothing gained by removing even a small strip of gauze within three or four days after operation, although it has become the practice to do that, particularly in gynecological and pelvic work. Anybody doing pelvic work comes in contact with the question whether to remove the appendix in an ordinary pelvic operation when the appendix is not involved. If the patient is in a perfectly good condition at the end of every pelvic operation the appendix should be taken out if it can be reached without any trouble. This opinion was the result of personal experience.

In connection with pus in the pelvis from bone lesions nothing had been said in regard to the methods of drainage of psoas abscesses. If these abscesses are opened as any other abscesses should be opened, from end to end, disregarding everything that is in the way, starting at the front and going around the crest of the ileum direct to the back, healing may be expected. He had several cases under his care in which a perfectly nice recovery had been made by opening the abscess from one end to the other. It takes about three months for these cases to heal, but when they do so they stay closed as a rule. He had seen this operation done on both sides of the same patient. It makes a very large wound, and one which a timid man would not make.

If a freshly opened pelvic abscess is washed out, or even a localized pus collection in the broad ligament, and if the general peritoneal cavity is slightly opened by mistake the pus would be likely to spread over areas otherwise healthy. When an abscess is once opened you do not need to wash it out when drainage exists such as you can get by gravity in the pelvis. With pus in the pelvis in which the abscesses are localized in the layers of the broad ligament, that is, extra-peritoneally, they can often be opened with greater safety to the patient by making an incision closely along Poupart's ligament or a little lower and pushing the peritoneum upward. This is a particularly nice way to do in those cases in which the variety of infection is obscure. As Dr. Norris has said, the case rests upon whether or not we can make the diagnosis.

He thought perhaps fully 10 if not 15 per cent. of cases drained with gauze or glass tube develop hernia. If we do not have to drain, we can close the abdominal wall and drain by the vagina. Even that does not always do away with the question of reopening. He had a patient who had a very bad pyosalpinx, upon whom he did a hysterectomy. An opening was made through the top of the vagina and gauze packed in until the hemorrhage stopped. He then sewed the peritoneum over top of the gauze. The cavity healed after the gauze was taken out and about eight weeks later another abscess developed. This is a complication which would not be influenced by drainage from above. If we can get rid of drainage through the abdominal wall by taking better care not to leave large stumps and infected uteri we will attain to something nearer perfection than we have to-day.

The point mentioned by Dr. Deaver of the differential diagnosis of peritonitis with fibroids and appendicitis reminded Dr. Charles P. Noble of two cases; one patient who was known to have a fibroid tumor was suddenly seized with violent pain in the abdomen in the appendix region with peritonitis and tension in the rectus muscle on that side. Operation showed a twisted pedicle in one nodule of the fibroid mass. He had seen the same accident twice and in both cases the condition has been suggestive of appendicitis. In dealing with pelvic abscesses due to appendicitis, he thought that when we have these large pelvic abscesses from appendicitis, as a general rule. it is better to drain, and not to attempt radical operation, because under these circumstances the patient is almost invariably exceedingly ill, is prostrated and not a fit subject for radical operation. He had had a number of these cases in which vaginal drainage carried the patient over the immediate attack and in which a cure was effected at a subsequent operation. He had several cases also in which pelvic abscesses formed secondarily to operation for appendicitis with abscess, in which the secondary abscess itself was drained per vaginam. In two cases it was quite apparent at the initial operation that there was considerable risk of this and the pelvis was drained with gauze at the time; yet secondary abscess followed. One was in the case of an adult; the other in a child of twelve. Bearing out Dr. Wilson's statement that these cases are rare in adult women, he had never seen them. The fact that one could have had a large experience in gynecology and never have diagnosed an abscess from bone disease indicates how rare is the condition. He had seen only two cases in which the suspicion might have come up, because the pelvic abscesses pointed in the loin just above the brim of the pelvis. The abscesses, however, soon healed with good drainage. He had one case sent to him as psoas abscess. He did not believe it was a psoas abscess, but the patient had such marked symptoms that he cut down and exposed the psoas muscle and found it to be perfectly healthy. Dr. Wilson saw the case with him. The operation cured her hysteria. It is interesting to find that Dr. Montgomery who some years ago was very ardent as

a vaginal operator has come to occupy the position much in accord with that of his colleagues. In his opinion the vaginal method should be reserved for special conditions and that the general method of attacking pelvic inflammatory conditions is from above. He was not in accord with the point made by Dr. Montgomery that when an abscess is incised through the vagina it should be irrigated and that gauze should be used. As a rule these cases do very much better without irrigation at the time of operation and whenever possible, without irrigation at all, and without gauze packing. If we have a large pelvic abscess and it is incised (not punctured), if the vaginal vault is widely opened, if necessary three inches, and there is free dependent drainage, the case does perfectly well without any form of glass, rubber tube, or gauze packing. The only cases in which gauze is an advantage is in the presence of a small sac with very thick wall in which you have to keep open the incision for a long time. This is the type of case which is least adapted to drainage. He thought the point raised by Dr. Nassau about packing off the peritoneal cavity applicable here. He looked upon the gauze pack not so much as drainage as a means of shutting off the peritoneal cavity from a septic focus. In the class of cases alluded to by Dr. Norris in which vaginal drainage is employed, as a rule he did not drain at all. With care and increase in skill it is seldom necessary to drain. It had been his practice when a patient died in a hospital to have an autopsy made, and there has not been reported a case in which there was reason to believe that the patient died from lack of drainage. By doing hysterectomy in this group of inflammatory pus cases and taking the healthy peritoneum from the bladder to cover over the wounded peritoneum we can avoid drainage in almost every case.

It is also interesting to hear mention of true phlegmon or suppuration in the pelvic connective tissue, because he remembered that some years ago when he reported such cases, they were not accepted as facts, by the more enthusiastic of Tait's disciples. It is now recognized by all that we do not have abscesses in the pelvic connective tissue. They are rare, but especially in puerperal cases we do have them. The most satisfactory method of treatment is vaginal incision. We can cure about all of them with their appendages intact. He did not agree with Dr. Nassau regarding the point of incision for abscess in the connective tissue of the broad ligament. It is never better to incise above Poupart's ligament, but always better to incise through the vagina, because incision above Poupart's ligament is almost always followed by hernia. The only exception is when the pus points in the groin.

Dr. George Erety Shoemaker said it was impossible in reaching a conclusion as to the method of dealing with pus in the pelvis to be guided to a certain extent by the cause of the pus. Considering the organisms to be dealt with the colon bacillus, the tubercle bacillus, the streptococcus as found in puerperal cases; we have the gonococcus and the streptococcus or mixed infection. These are the principal factors and all agree probably that if the colon bacillus in active stage is found as in acute appendicitis drainage should be used, and that in dealing with the gonococcus we do not as a general thing require drainage; in dealing with the tubercle bacillus, if we can remove the infected tissue we do not require drainage. In dealing with the streptococcus as in puerperal cases we do require drainage, preferably through the vagina, while ordinary mixed infections may be best treated without it. There is another way of grouping these cases according to the tissue involved. As a general thing we drain as a measure of safety in abscess involving the integrity of the bowel wall and the appendix. When the pelvic connective tissue is chiefly involved as in some puerperal cases we can as a general thing drain from below with permanent success. Gonorrheal pus tubes call for abdominal section without drainage. Vaginal incision alone is unsatisfactory in these cases, because the sac wall is well organized and has a secreting surface. The same rule applies to vaginal drainage of cystic tumors. Vaginal drainage alone will be apt to cure any case where the sac wall is made up entirely of connective tissue with inflammatory changes.

Dr. B. F. Baer thought the glass drainage tube and gauze packing not only entirely unnecessary but positively harmful. It is accountable for some deaths and for nearly all of the bowel fistulæ. Further, the practice of "walling off" the abscess during the operation, with gauze, seemed to him to be overdone. He had seldom found it necessary, even in the worst cases of septic appendicitis. There is more danger of infection by the "walling off" with gauze than by quickly separating adhesions, liberating pus, removing the diseased organ and washing away any septic material by thorough irrigation with saline water. Whenever he had seen it done, it seemed to him that more injury was done and that there was more danger of spreading the infection, because it is a time-consuming and difficult manipulation; coils of intestine keep coming up and necessitate continual pushing to get them back. There is necessity for drainage in a few cases, but the percentage is very small; then the rubber tube is better than glass, because there is less danger of creating a fistula in degenerated bowel, and it admits of more freedom in changing the position of the patient.

Dr. Deaver concluded the discussion by saying that when the pelvis was full of pus the surgeon would open through the rectum using the old trocar and cannula and these cases would recover. The principle is the same as that in operation to-day per vaginam. The question of drainage in other pelvic operations depends largely upon the individual. Dr. Norris had referred to Landau's operations. He had not seen him do a single vaginal operation. He performed between 700 and 1,000 abdominal sections each year and had occasion to use drainage in a certain class of cases. Dr. Shoemaker had struck the keynote in speaking of the character of infection. He believed a certain class of cases required drainage. We hear of cases operated without drainage in which the abdomens are full of pus and that the patients get well. In the case of a woman with miscarriage he curetted and when not able to discover anything, incised the vagina and put in a piece of gauze which has been followed by a smooth recovery. The temperature and pulse rate have come down and all evidence of infection has disappeared. In extra-uterine pregnancies where there has been a blood clot and suppuration and in which all the pus secreting surface cannot be removed drainage is indicated. With Dr. Baer he used drainage less than formerly, but a different class of cases go to private sanatoria than to a general hospital. He believed we all have the same ideas, and furthermore, that if they all had the same class of cases they would do nearly the same thing. Certain operations can be well done by the vaginal route, but in his experience the larger number of pelvic cases are better done by the abdominal route. In regard to the class of cases mentioned by Dr. Nassau, in which the opening is made above Poupart's ligament, he had seen cases open spontaneously about Poupart's ligament, and he knew that there was a percentage of cases in which the mass is very high and cannot be reached by the vagina.

THE NEW YORK ACADEMY OF MEDICINE.

SECTION ON GENITO-URINARY DISEASES.

Stated Meeting, held December 17, 1902.

Dr. John Van der Poel, Chairman.

Nephrectomy for Carcinoma.—Dr. George E. Brewer presented this patient who had been shown the Section some two and a half years ago shortly after a nephrectomy had been performed for carcinoma. At that time he gave a history of hematuria with pain upon the left side. The hematuria occurred twice at intervals of six months. The doctor saw him after the second attack when there was but a trace of blood although, two days before, he had passed a large quantity of blood. The cystoscope demonstrated the presence of a small clot adherent around the left ureter. He attempted to catheterize the left ureter coincidently. The patient was a stout man and nothing could be found on palpation. As it was evident that his previous attacks were limited to the left side it was thought advisable to make an exploratory nephrotomy. Under an anesthetic the exploratory incision was made in the loin and a tumor was found which elicited some fluctuation but, when the needle was introduced, no fluid could be drawn. Through the small opening much blood came and there was only one thing to do which was nephrectomy. The tissue was very friable and easily ruptured and the operation was one of necessity. The Koenig incision was made, the kidney was raised from its head and the pedicle clamped. Examination showed it to be a typical carcinoma. Along its surface were certain spots showing places of rupture. In other words the carcinoma had so distended the capsule of the kidney to the verge of rupture. The patient made a good recovery and was shown to the Section a few weeks afterwards and, in the discussion that followed, several stated that they wished to see the patient again at the end of two or three years. It now was within three months of the three years and he preferred to present it at this meeting, because it was devoted to the consideration of kidney troubles.

Nephrectomy for Hydronephrosis and Ureteral Stricture.—Dr. George E. Brewer exhibited this patient, a boy, in whom an error in diagnosis had been made. He came into the hospital with a history of pain in the right inguinal region but he had no fever. He had a distinctly palpable spot over the appendix which was not the seat of any pathological lesion. He left the hospital only to return with a tumor in the flank. There was a fluctuating swelling in the position of the kidney and he had an attack of extreme pain one week previous and so an exploratory operation was performed when he came down upon a large distended kidney. An incision into it showed the cortex about one-half or three-quarters of an inch in thickness. The pelvis of the kidney was dilated. The ureter was dilated down in the pelvis. The sound could be passed as far as the bladder. Although he could not detect the source of obstruction no attempt could be made to remove it. The kidney was incised, the urine passed freely and the patient made a good recovery and had no further disturbance until one year ago when he presented symptoms of an acute retention and then a calculus in the posterior ureter was removed by the peritoneal incision. The calculus presumably had caused an obstruction in the lower end of the ureter, had become loosened and then become impacted in the posterior ureter. He did not make the typical Koenig incision. The boy had been well ever since.

Nephrectomy for Calculus.—Dr. Brewer also presented this patient which was somewhat similar to the last case in that an error in diagnosis was made. The patient was admitted to the hospital with the history that for four years she had attacks of pain in the right side which were accompanied by large swellings. There was found a fluctuating small-sized tumor, the size of a child's head, which was very tender and a diagnosis of obstruction in the kidney was made. The day after her admission the swelling became less and by the third day it disappeared as also did the pain. The kidney was somewhat movable. The Edebohl incision was made and the kidney was found to be distended and the ureter was enlarged so far as it could be traced in the pelvis. The kidney was in a flaccid state. In the absence of evidences of calculus, searching high up, he thought the condition might be due to increased movability of the kidney. It seemed to fall forward and to be twisted on the ureter causing an intermittent hydronephrosis. Fixation of the kidney was performed by the Edebohl method. At the end of four or five days the pain, swelling and evidences of distention of the kidney reappeared. In the secondary operation that was done the ureter was found dilated to the region of the bladder. As the symptoms had been so severe for a number of years, and as it was impossible to reach the source of obstruction, the kidney was removed. The interest in the case was not only in the nephrectomy but also because he was able to report at the end of perhaps two weeks from the time of the fixation that the kidney was so firmly attached that great difficulty was experienced in moving it in any direction and much force had to be used in separating the kidney adhesions. He certainly had never seen a kidney more firmly attached or anchored.

Dr. Charles L. Gibson presented another case of this affection in a woman who gave the history of renal calculus beginning six years before she came under his care last July. Six years previous she had had two transitory, fairly well marked, attacks of renal calculus and, at one time, small calculi were passed; then she had an interval of freedom from her trouble until last July. Her attention was called to a sense of discomfort in the kidney region on the right side which was diagnosticated as a floating kidney for which she wore a bandage. Four days before he saw her she had an acute attack, ushered in by a diminution in the amount of urine passed and considerable pain. When he saw her she had a temperature ranging about 103° F. In view of the urgency of the symptoms he thought it best to perform an operation which was done on the following day. Koenig incision. Under the anesthetic the calculus in the kidney could be felt. Making an incision into the convexity a portion of the calculus was extracted, as soon as he was one-half way through, the flow of blood became so great that he thought it would be more conservative to remove the kidney *in toto*. The patient made a good recovery. Thirty ounces of urine passed within the first 24 hours. There was some shock and temperature but it was not alarming. It was interesting to note the Widal reaction 1-20 was present. The urinary function was now all right.

Nephrectomy for Tuberculosis.—Dr. Gibson showed another interesting case of tuberculous kidney. In this patient the symptoms were not at all pronounced. There was a feeling of discomfort in the right side, some general constitutional symptoms and no pronounced urinary manifestations. There was never any history of attacks of renal colic, no pronounced pain, no hematuria or pyuria and, therefore, the diagnosis remained in some doubt. She entered the medical side but he was unacquainted with what diagnosis because the history book was at the binders. She was soon transferred to the surgical side, however, with a kidney mass which was very sensitive and he was impressed with the fact that it was something more than

a prolapsed kidney. The other kidney could not be palpated. The patient was running some temperature and constitutional symptoms. There were no signs of tuberculosis in the lungs or anywhere else. A diagnosis of pyonephrosis was made. When operation was performed using the long transverse incision he came down upon evident tuberculosis of the kidney very clearly limited to its central part resembling an infarct. Through the incision the other kidney could be palpated. To be absolutely sure of the existence of the other kidney, a posterior incision was made on the other side and the kidney exposed; it was perfectly normal. The result was most gratifying for the patient gained 20 pounds since last August and has much improved in general health and absolutely free from any urinary symptoms. The scar is absolutely firm, and although quite extensive, will probably never give trouble, as an incision so located gives admirable results.

Dr. F. Tilden Brown protested against the method pursued by Dr. Gibson for detecting the integrity of the left kidney. He thought that evidences of tuberculosis in the kidney, except of the grossest sort, by gross inspection of its surface, was the method to pursue. If one found himself face to face with an emergency nephrectomy, it was proper to resort to such means. But he believed that in any of these serious kidney operations differentiating the condition of the two organs should first be undertaken and thoroughly done.

Nephrectomy for Rupture of Kidney.—Dr. Charles L. Gibson presented this specimen removed from a girl eleven years old, who was brought to the hospital 12 days after being kicked by a horse. The history given showed that she had not had much shock and only a transitory hematuria. When he saw her there were no signs of any external injury, but a fluctuating tumor could be made out which contained two quarts of fluid. The pulse and temperature were normal. Upon making the ordinary nephrotomy incision posteriorly, and evacuating the sterile urine—there were no evidences of extravasation, the kidney was found split in two parts obliquely, *i.e.*, the lower third carrying with it the ureter was separated from the upper two-thirds where the vessels were. The lower fragment was completely cut off from its blood-supply, and the upper fragment had no outlet for the urine. The kidney was removed and the child made a good recovery.

The urines were segregated by a French segregator, a new instrument, but it did not prove at all satisfactory.

In this particular case the important fact to be determined was not so much whether the other kidney was affected with tuberculosis to a greater or less degree, but if so involved, how much presumably sound kidney tissue remained. This can be reasonably estimated to be sufficient, when one was able to see clearly and palpate a kidney which gave every outward sign of being normal.

Ectopia Renalis with Nephrolithiasis, and Pyelonephritis.—Dr. A. A. Berg presented this specimen, which was removed from a man who was admitted to the Mt. Sinai Hospital in May, 1900, when he gave the following history. He had been sick more or less for four years previous to admission. During that time he had had attacks of pain to the right of the umbilicus. The attacks of pain were accompanied by vomiting and frequent urination, although there was no pain in urinating. He had lost no flesh or strength and had been going about attending to his work as usual except during the attacks. At the time of his admission he presented a tumor lying to the right of the umbilicus, behind the lower half of the right rectus muscle, not affected by respiratory movements, and very painful upon pressure. It was fusiform in shape, slightly lobulated, semisolid to the feel. The cystoscopic examination was practically negative. He had a trabeculated bladder but the ureteral orifices were both normal. Urinary examination showed pus and traces of albumin and mucus. Quantity of urine passed was normal and its specific was normal. There was much doubt at first as to the character of the tumor. A tentative diagnosis of open urachus was made and an exploratory incision was determined upon which revealed a tumor situated retro-peritonally. The operation was performed by Dr. Gerster. The tumor was situated in front of the sacral promontory in the middle of the sacrum. Its character even then was in doubt. Dr. Gerster excised a portion of it for microscopical examination. The parietal peritoneum was sutured and a gauze tampon was used for drainage. Convalescence was smooth. A few blood cells were found in the urine after the operation, otherwise there was no interference with convalescence. The pathologist reported that the specimen was a piece of kidney and showed lesions of chronic nephritis. Then the diagnosis was made of a kidney lying in the concavity of the sacrum, firmly fixed, and the seat of a chronic nephritis. It evidently was a congenital displacement, an ectopic rather than an acquired condition. The patient was discharged in May, 1900. In the middle of June the patient returned and stated that two days before he was suddenly seized with a severe attack, which was accompanied with pain, frequent and painful micturition, chills and fever. Upon admission to the hospital this tumor, noticed before, had become larger, about the size of a cocoanut, exquisitely tender and painful. The patient had a temperature of 103° F. In the evening with the chills there was a temperature of 105° F., with rapid pulse, etc. The patient was evidently seriously sick and it was thought the tumor had become the seat of purulent foci, the result of an excision or possibly that strangulation of its pedicle had taken place, and it was thought best to make a second exploratory operation. Upon opening the abdomen few adhesions were found between the intestines and peritoneum. After freeing the peritoneum from the entire anterior surface of the tumor and exploring the pelvis he detected a stone which was easily palpable through the substance of the pelvis. The kidney pelvis was found to be the seat of a purulent inflammation. The kidney was brittle and friable, and its upper portion necrotic in character. The site of the kidney was packed and an exploration of the left lumbar region was made and a comparatively healthy organ was found. With that history and the condition of the kidney I determined to do a nephrectomy. The relation of the ureter to the vessels was interesting. The ureter came up from the middle line, crossed over the median anterior aspect of the kidney while the veins of the kidney passed in front and behind and so the kidney was caught between its vessels and ureter. The arteries came from below and passed upward and inward. The operation of nephrectomy was a simple one, but the patient died on the sixth day from a localized peritonitis with purulent infiltration around the neighborhood of the pedicle. The other kidney showed a similar state of degeneration.

Case II.—J. S., a male, twenty-nine years old, cloak maker. His family and personal history negative. Ten days before his admission he had an attack similar to the present one. The present attack commenced a day ago, with severe pain in lumbar regions, radiating downward into the groin. It was of equal intensity on both sides. There was no chill; some fever; he vomited several times. Bowels had not moved in two days, but he had passed plenty of gas. Urination frequent, somewhat painful; no blood in urine. On admission to the surgical service of Dr. Gerster, at Mt. Sinai Hospital, he was in fair general condition; the internal organs were normal. The entire abdominal wall was rigid, but espe-

cially the lower half of right side. Here there was also marked pain and tenderness. Rectally a large mass high up above the prostate could be palpated. Temperature 102.8° F., pulse rate 106. Uric acid 1.022, many granular casts.

Diagnosis: acute appendicitis. Immediate operation. Peritoneum normal; appendix congested and club shaped. Retroperitoneally, over the promontory of the sacrum, and in the sacral concavity was a rounded tumor firmly fixed. It was at once recognized as a sacral kidney. The peritoneum lying over it was incised, so as to inspect the organ. In peeling the peritoneum off its anterior surface a large vein at the pelvis was torn across; attempts to check the hemorrhage by the House Surgeon resulted in a large tear of another vein at the pelvis. It was found impossible to close the rents in the veins, so after temporary compression of the pedicle while the left kidney was located and felt the displaced organ was enucleated. The left kidney was found to be in its normal position, and of normal shape, consistency and size. The patient had an uneventful convalescence. The pathologist's report was of excised kidney, cubical in shape, pelvis on anterior aspect; external lobulation slightly marked. Veins ran longitudinally at the pelvis. Microscopical examination showed parenchymatous degeneration.

Nephrectomy for the Removal of Calculus.—Dr. F. Tilden Brown said he would like to present this case to substantiate the point brought out by Dr. Gibson when he found an annoying complication developing in the case of removal of the calculus primarily to removal of the kidney. The patient was a man thirty-seven years old who 17 years previous had had brief severe pain running up the right lumbar region. He then had an absence of pain for 10 years, when it recurred and had continued to recur at frequent intervals, the last one occurring one month ago. He had an attack of severe pain once a week which kept him at least 36 hours in bed. The urine contained a great deal of pus and there was vesical irritability. Palpation of the kidney elicited signs of tenderness. Examination of the bladder with the cystoscope showed nothing abnormal. Catheterizing the ureters gave 20 c.c. from the left side in 16 minutes, slightly turbid and much clearer than the five c.c. which came from the other side in the same time. Cultures showed the presence of the colon bacilli growth. An X-ray picture taken by Dr. Mosely gave a capital shadow in the region of the right kidney and a second picture showed an equally good shadow and good differentiation of the tissues surrounding. The clinical manifestations were enough to get him ready for operation. Everything seemed satisfactory except the patient wanted to know what was done and he was told that the probability was that there was some condition of his urine passed from the bladder that made us believe the right kidney was badly disorganized and that it might be in such a condition that it would be better for him to remove the stone with the kidney rather than to take out the stone and leave the kidney in because a second operation might be required to remove it. He naturally wanted to know if the other kidney was in the same condition and he was told that if he was willing to submit to an annoying test we would make it. The ureter was catheterized and blood was found. Although the left ureter showed the presence of large quantities of urine and urea, with the specific gravity satisfactory, still there was presented a certain amount of pus and traces of albumin; this with the growth of the colon bacilli showed an infected organ and made him feel none too sure about doing a nephrectomy no matter what conditions might present themselves there. Upon reaching this organ it was found to be in a pyonephrotic sac so large and disorganized that there was nothing to do but remove the kidney.

Dr. Charles H. Chetwood said that he had operated upon a case somewhat similar to Dr. Brown's, in which there were multiple abscesses in the kidney and in which he did not do a primary nephrectomy. He had simply drained all the pus foci and later had to do a secondary nephrectomy. He had reason to regret before completing the second operation that he had not performed a primary nephrectomy as Dr. Brown had done.

Dr. F. Tilden Brown said that despite the pathologist's report the clinical history and the appearances of the specimen and examination of the patient was sufficient to warrant the belief that there was a rapidly developing sarcoma, possibly disseminated by means of the spermatic veins.

Dr. Charles L. Gibson said that he had a case some years ago which presented the same features and in which there was a fibroma in the neighborhood of, but not in, the testicle proper. At certain points it had broken down and was surrounded by inflammatory tissue. The pus was evacuated and he then came down upon a very extensive dense tissue. It was presumably sarcomatous and its entire removal was impossible. He gave a gloomy prognosis, only to be told subsequently that the tumor was a pure fibroma. This was several years ago and the patient is entirely well.

Dr. A. Ernest Gallant referred to a paper read in 1892 by Dr. N. Senn in which he described a variety of tumor originating in the fibrous tissue of the abdominal wall to which he applied the term "desmoid." The description of the tumor here presented corresponds very closely with that type of neoplasm.

Dr. A. V. Moschcowitz believed that it was an abdominal sarcoma. These tumors in the testis most frequently belong to that variety of sarcoma, which have received the name of endothelioma, and which originate from the endothelial lining of the capillary or lymphatic vessels. These tumors are exceedingly malignant. He did not remember seeing many cases, about one-half a dozen, and not one recovered, in spite of early and radical operation. Only two weeks ago he had a patient with a tumor of the testis, and the diagnosis of sarcoma was made, and the patient was operated upon; the operation consisting of a high castration, with splitting of the inguinal canal, and deligation of the spermatic cord high up. This patient made a good recovery, but 16 days later, when he came to examine him, he already found what appears to be a recurrence in the abdomen.

Dr. Alexander B. Johnson expressed his concurrence with the conclusions drawn by the reader of the paper in regard to the operative treatment of these conditions. He desired to congratulate Dr. Blake upon the admirable presentation of the related cases. He believed that any one who had attempted to do a secondary nephrectomy in a case of pyo-nephrosis could not fail to agree that was one of the most formidable of surgical operations. He had seen very few cases of pyonephrosis cured by incision and drainage. In regard to the treatment of infected hydro-nephrosis he had expressed the opinion before this society last year that nephrotomy was the operation of choice in these cases. Practical experience during the past year had led him to modify his views to some extent. He believed that the proportion of cases of this kind in which it was practicable to reestablish communication between the kidney and the bladder by nephrotomy and thus to cure the patient was small. Moreover for reasons already expressed nephrectomy in these cases was often easy of performance and attended by less risk than was the cases in pyo-nephrosis. With regard to the treatment of kidneys that were infected and contained stones he would be inclined to recommend nephrectomy in per-

haps a larger proportion of these cases than had Dr. Blake. He had removed a considerable number of infected kidneys containing calculi. All had completely recovered but one. The difficulties and dangers of nephrolithotomy in these cases were in their order of importance and frequency hemorrhage, sepsis, destruction of the remaining kidney tissue, and the difficulty in finding all the stones.

The transverse incision so often used by Dr. Blake offers many advantages when compared with the vertical, oblique and other lumbar incisions. At its anterior extremity the peritoneum is readily accessible and may be incised to facilitate palpation of the opposite kidney. It exposes the anterior surface of the pedicle of the kidney where the renal vessels are situated unobscured by the interposition of the ureter and in this way makes control of hemorrhage precise, which after all is the key note of safety in major operations upon the kidney.

Dr. Eugene Fuller said with regard to calculi in the kidney in those cases which were infected and where the deposit was phosphatic that the only satisfactory treatment was to take the kidney out. In such cases when he had left the kidney behind, after removing stones, other calculi had formed in many instances. At the same time where calculi were found in one kidney one should always bear in mind that a similar formation in connection with the other kidney was of frequent occurrence, so that it was really dangerous to take out the kidney having the calculi because other calculi might be found or might soon form on the opposite side. He had in mind a case which he had operated upon for stone in connection with both kidneys. The patient had aneuria and he took out a calculus the size of the thumb which had blocked the urinary outlet at the pelvis of the right kidney. The kidney was more or less damaged but he tried to save it. At the end of two weeks a secondary nephrectomy was demanded owing to renal suppuration. The patient got well remaining so for four years. Then complete aneuria again occurred caused by a stone blocking up the only remaining kidney. Before nephrotomy could be performed and the stone removed an abscess had formed which had destroyed some of the renal parenchyma. The patient lived two weeks after the last operation and finally died of aneuria. It was unfortunate that a secondary abscess in connection with the case had destroyed so much kidney tissue that enough did not remain to sustain life. It was interesting in this case, that before death there was an immense amount of urine secreted from the one kidney. He agreed that a secondary nephrectomy was an exceedingly difficult operation unless undertaken within two or three weeks after the nephrotomy while the wall of granulation tissue was still soft. After everything had healed and the adhesions had become organized the operation was extremely difficult.

Dr. George E. Brewer called attention to the violent hemorrhage encountered in attempting to remove calculi of large size. In one of his cases not only was there very extensive primary hemorrhage but also a secondary hemorrhage. The primary hemorrhage was so great that he was compelled to tampon the kidney; this arrested it for 24 or 36 hours and then the tampon was removed. Within a few hours an extensive secondary hemorrhage occurred necessitating retamponing the organ. This was a case in which there was a little infection and where there was a very large branching calculus in the kidney. He thought it would have been safer to have removed the kidney at first although there was a good deal of secreting substance which appeared to be capable of functionating.

Dr. James Pedersen recalled a report by Dr. Dowd of a case in which the hemorrhage was controlled, as he thought, by adrenalin solution. A small calculus was removed through a small incision in the convex border of the kidney. There was moderate hemorrhage at the time but considerable secondary hemorrhage. Adrenalin solution was used in the wound, apparently with good results in addition to the tampon.

Dr. John F. Erdmann said he had the after-care of the patient referred to by Dr. Pedersen and he had found that patient almost in a condition of collapse. Upon exposing the wound he could pass his finger in under the diaphragm where he removed a large quantity of clots. Adrenalin was given by the mouth and a tampon was inserted. He had a photograph with him of a case upon whom he had operated three weeks ago, in whom he removed the left kidney for pyonephrosis and a small stone six months before. Three weeks later there was pain upon the right side and a large branching calculus was found. He controlled the hemorrhage only by digital compression and then by tamponing. He allowed the tampon to remain in until it practically was driven out by pressure upon the fifth day.

Dr. Tilden F. Brown said that there was no border line between nephrotomy and nephrectomy which was a justifiable one and, therefore, Dr. Blake should be congratulated in his results from nephrectomy. He thought we should all be more alert and obtain a good comprehension of pus formation in the calix, or calices, or in the pelvis of the kidney where there might be a fairly smooth stone which could be removed without much traumatism, preferably through a posterior longitudinal incision into the pelvis. He believed that mode of removing stones was the one of choice in dealing with apertures. It was well to close them with great care with catgut and to fix in a very long Conde rubber catheter, suturing with light catgut in order to hold it in position and not irritate the pelvis of the kidney and bring it out upon the loin in such a manner that good siphonage could be obtained. The tube in this way can be kept clean and any annoyance by blood-clots can be avoided. Again any temporary retention of urine will be avoided. He believed that the remark made that ascending infections frequently followed traumatism of the lower urinary passages must be accepted with reservation. This big distention may first limit blood absorption and secondary infection of the kidneys by hemotogenous disturbances may occur which was perhaps just as likely as an ascending infection through the ureter. He had been struck by the degree of health presented by many patients when they had large nephritic kidneys; many were able to attend to their vocations and showed an excellent condition of health.

Dr. Joseph A. Blake said he did not say that ascending infections were due to traumatism.

Dr. Brown replied that he understood him to say that some cases of pyonephrosis were due to ascending infections from the bladder probably following instrumental interference with the ureter.

Dr. Blake did not believe that any history of such instrumental interference causing disease was gained in any patients under his care.

In regard to the bilateral occurrence of renal calculi, he said that one woman from whose kidney he had removed a large stone by nephrolithotomy had passed a stone from the opposite kidney two months after the operation.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON ORTHOPEDIC SURGERY.

Meeting of Nov. 21, 1902.

George R. Elliott, M.D., Chairman.

Pott's Disease.—Dr. Homer Gibney presented a cured case of Pott's disease in a child three years old, with the following history: Six months ago (January,

1901), from no known cause he began to walk awkwardly, the abdomen was thrown forward and he swayed from side to side with evident pain. Nothing was noticeable but the above till June, when a swelling appeared in the left buttock which interfered with locomotion. He was treated at various hospitals and operated on at the Eighth Street hospital, by aspiration, pus and blood being withdrawn. Examination showed fairly well nourished child; nodular swelling on left buttock posterior to the great trochanter, tense but not painful. Boy could not walk. The body was thrown forward, the abdomen prominent. In the effort to pick up a penny, he supported himself by hands on knees. The lumbar spine was rigid and there was a slight prominence at the fourth lumbar vertebra. On August 1 a frame was applied and the grandmother was instructed in its care. December 20, doing well, very little deformity. Swelling on the left side had disappeared, January 11, 1902: Back in good condition, no deformity, fairly flexible. July 1, 1902: Has worn permanent jacket for two months which was applied and allowed to dry on the frame, thus getting complete fixation in over-corrected position. November 18: Left off the apparatus, spine flexible, no evidence of disease, discharged cured. As to treatment, he said the frame was the one used in dispensary and private practice, a modification of the Bradford frame, made of canvas over gas piping, easily bent from time to time, thus over-correcting the deformity.

Dr. Charlton Wallace presented three cases of this same disease under treatment on the Whitman modification of the Bradford frame, the duration of the disease being twelve, eight and six months respectively. He said, while as a rule cases over eighteen months of age are not treated by the frame, one of the cases presented was four years old and was doing well on the frame; in that case the disease had only lasted six months. The frame used is a parallelogram made of three-quarter inch gas piping, four inches longer than the child, two inches excess at either end. It is made wide enough so that the side bars are opposite the glenoid cavities of the scapulæ. It is covered with tightly fitted canvas laced in the rear. Two pads are arranged on each side of the focus of the disease sewed to the canvas. Rubber cloth covers the canvas over the lower half for cleanliness. The apron is attached to three buckles on the sides by straps which are kept tight. The frame is gradually bent backward till the highest angle of the bend is at the site of the disease so that the back is hyper-extended and the pressure relieved from the bodies of the vertebræ.

Dr. R. H. Sayre said he thought the treatment excellent. He used a similar treatment. He believed, however, that Dr. Wallace allowed the patient too much freedom of motion. He considered the motion of the legs unwise as the play of the psoas muscle exercised a great deal of action on the spine, especially if the disease affected the lower dorsal or lumbar regions. In such cases the legs and trunk should be controlled; a jury mast to the frame would be an advantage. He preferred the cuirass, allowing control of both extremities of the spine. It was also injurious to take the child off the frame for movements of the bowels and bladder, as so much moving would cause traumatism of the spine.

Dr. Royal Whitman stated that he had described and illustrated the treatment shown by the cases presented some years ago and thought it better than the cuirass or other flat apparatus because of the over-extension which this apparatus allowed. He further remarked that children were not removed from the frames for movements of bowels, diapers or an ordinary dustpan being used while the child was in position on the frame. Head and leg traction could be used if necessary, but the position of over-extension itself was a great protection to the spine; it was also an advantage to have the side-bars close together as this allowed of less sagging than in the original Bradford apparatus. He further observed that the clothing adjusted over the frames was arranged to include the frame and the child. If further fixation were desired the child was suspended and a light plaster jacket applied. The patient was then replaced on the frame to which its jacket must conform in hardening, thus assuring fixation and over-extension.

Congenital Dislocation of the Hip.—Dr. Whitman presented a patient operated upon five years ago for congenital dislocation of the hip, by the open method with enlargement of the acetabulum. But one side was operated upon as anchylosis appeared probable. Now the patient, a girl aged eleven years, limps on the unoperated side and considers the anchylosed limb the "good one." The operated limb is two inches longer than the other and is much larger. There is no deformity, and practically no motion in the joint. This, Dr. Whitman considered as bearing out his contention advanced some years ago, that in the treatment of unilateral dislocation secure reposition—even if motion was very limited as the result of operative interference, provided there were no deformity, was a great improvement over unreduced displacement. He mentioned three similar cases to the one presented and stated that he thought all of them had asked for operation on the other limb.

Dr. V. P. Gibney referred to a case similar to the one presented by Dr. Whitman, in which one side had been operated on with anchylosis, the operated leg being the better. He spoke of another case in which the operated limb was 2½ inches shorter and the thigh three inches smaller in circumference, yet the patient walked with ease. He noted the fact that patients and parents generally regarded these results from a different standpoint than the physician and almost invariably begged for operation on the other leg.

Noisy Shoulder.—Dr. Sayre presented a patient seen two months ago, giving the history of slight curvature of the spine accompanied by crackling of the muscles over the scapula on moving the shoulder up and down; there was also pain over the deltoid on the same side; the impression was given that the scapula was sliding over some substance. The case was presented for diagnosis and suggestions for treatment. Dr. Sayre referred to a somewhat similar case in an athlete who, after violently lifting weights stated that he had pain along the erector spinæ muscles with muscular cracklings.

Dr. V. P. Gibney said he had a similar case under observation in a young woman, aged twenty years, who had a noisy shoulder for a year. She had intercostal neuralgia and hysterical spine. He regarded the symptom as hysterical and prescribed the Paquelin cautery with rest; marked improvement followed.

Dr. Whitman had seen several such cases and was impressed by the fact that the patients always wanted to produce the noise. He thought it was caused by a snapping tendon or possibly by a bursa beneath the scapula.

Dr. Homer Gibney stated that in giving exercises to patients he had noticed these crackling sounds in many cases, especially in one exercise for lateral curvature. He also thought it was a snapping tendon.

Dr. Elliott said he had seen similar cases and at present was treating a girl for lateral curvature of the spine who had the noisy shoulder to a marked degree. When he first saw her the scapula was quite immovable. She had been taking rather vigorous exercises under treatment and as a result the scapula had so become quite

mobile, and the noise was very marked. The slipping of tendons did not satisfactorily explain this objective symptom.

Typhoid Spine.—Dr. Leonard W. Ely read this paper. He referred to the summary and analysis of 26 cases reported by Dr. F. T. Lord in the *Boston Med. and Surg. Journal* of June 26, 1902, since Gibney reported his first cases in 1889, and said he had found three more cases reported.

The patient he referred to in his paper was a physician aged thirty-three years, who had a severe type of typhoid fever, January, 1902, complicated with pneumonia and pleurisy. At the end of six weeks when the patient began to sit up, weakness of the back was observed. Following the convalescence in March, the weakness in his back continued and was made worse by an attempt to stoop. A lateral curvature and stiffness of the lumbar spine was observed, with some pain and great difficulty in standing erect. March 23 a severe chill was followed by pneumonia of the left lung, complicated with pleurisy with effusion.

After three weeks, when the patient began to go about, the lateral curvature was quite marked and was accompanied as before by stiffness, weakness and lumbar pain; no sensitiveness of spine to pressure. He went to Southern California early in May, but the spinal symptoms did not subside. The stiffness, weakness and pain were increased by exertion. A severe cramp in the left lumbar region followed an attempt in rising from his chair, and returned each time he attempted to get up so that he was compelled to keep his bed. When quiet in bed tne pain did not return. A severe spasm in the left lumbar region, however, followed while turning over in bed. The spasm was tonic in character lasting 30 seconds gradually relaxing, then returned and was only relieved by chloroform inhalation after moderate use of morphine had failed. It was necessary to chloroform the patient when subjecting him to any effort. The pain shifted to the right lumbar region the spasms became less severe and were controlled by morphine. Examination showed patellar reflexes exaggerated, intermittent twitchings of the muscles of the thigh, no loss of sensation, no paralysis.

Spasms in the back continued sometimes causing opisthotonos. Spasmodic attacks continued at intervals until July 27. After this he often had the so-called "starting pain" upon falling to sleep. On Sept. 22 a Taylor brace was applied and improvement from this on was rapid, but pain and stiffness in the right groin persisted for some time. Stiffness and limitation of the lumbar spine were the only objective signs when he returned to New York October 13. He still wears the brace.

Referring to the pathology of typhoid spine he said no autopsy had ever been reported. He believed it, however, an ostitis probably combined with a periostitis, and a probable neuritis caused by the inflammation of the bone and periosteum. This was generally considered to be the pathology of typhoid spine but Osler thought it a neurosis and reported six cases. Of the reported cases, 26 out of 30 were in males. The symptoms of the reported cases were much like those of lumbar Pott's disease, but more acute, and had the history of typhoid. Rest was the essential in treatment. Local application did little or no good.

Dr. Whitman agreed with Dr. Ely that cases of typhoid spine were not so very uncommon. He had seen a number and had one case now under treatment at the hospital, a child ten years of age.

Dr. V. P. Gibney considered the history presented by Dr. Ely as the most complete on record, and agreed with him as to the frequency of the affection. There are all degrees of typhoid spine, some very mild and similar to those described by Osler. He had never been able to trace any definite trauma as cause. He was surprised that no relief was experienced from the cautery and thought it was not properly used as he had obtained good results from it. He had nothing to add to the pathology. He thought the cases with kyphosis should not be included in the class of typhoid spines.

Dr. Whitman wished to know why cases were not to be included with typhoid spines in which kyphosis indicated destruction of the vertebræ.

Dr. Gibney answered that if the vertebræ were destroyed there would evidently be a destructive inflammation which was apparently not the case with typhoid spines, the condition being rather one of overgrowth of tissue. He was inclined to think that in the deformed cases a tuberculous element was present.

Dr. Sayre referred to a case of what he called "diphtheritic spine" following an attack of diphtheria. The disease left a slight nephritis and spinal disturbance attended with a certain amount of lateral deformity and interabdominal abscess formation, presumably the consequence of the diphtheritic infection.

Dr. Elliott asked Dr. Ely if in his research of the literature of typhoid spine he had found recorded marked relief following the application of a carefully applied support.

Dr. Ely replied that the effect was usually put down as being very quickly favorable. He regarded Dr. Gibney's remark about application of the cautery as a point well taken, and stated that the attending physician used the instrument at a black heat and made slow application—an operation the patient did not want to have repeated. He emphasized the necessity of rest in the treatment.

Arthritis.—Dr. A. A. Berg presented a case of acute serous arthritis. An acute osteomyelitis of the femur had developed and the case was seen three days after the onset of the disease. There was considerable effusion in the knee-joint. The medulla and lower epiphysis were opened and drained and the symptoms disappeared. There was no interference with function of the knee-joint.

Dr. Berg read this paper entitled The Joint Complications of Acute Pyogenic Osteomyelitis. He said: The joint manifestations that may complicate acute pyogenic osteomyelitis are divided into the sympathetic or pseudo-arthritis and the true inflammatory arthritis. The former accompany the very early stages of the bone infection, and are often the first and only physical signs of such an acute osteomyelitis. This explains why these cases are so frequently diagnosed as acute articular rheumatism. The true arthritis is due to bacterial invasion of the affected joint. The sympathetic or pseudo-arthritis adds in no way to the severity of the septic symptoms arising from the primary bone infections, and tends to spontaneous subsidence after drainage of the marrow canal. The true bacterial arthritis adds materially to the patients toxemia, itself requires surgical interference, and is apt to leave the joint seriously impaired in integrity and function.

The writer laid stress upon the periarthritis that accompanies the joint inflammation, whether the latter be of mild or severe form. It is of much importance diagnostically inasmuch as the acute rheumatic and gouty forms of arthritis are at first confined to the joint serosa, with little or no periarthritis. The varieties of joint inflammation and their symptoms were briefly described.

The writer has minutely described his practice in the treatment of these joint complications. The suppurative types of arthritis he divides into three cases in which a purulent exudate into the joint is the chief lesion, there being very little destructive change of the com-

ponents of the joint, and into these in which the destructive inflammation of the ligaments, cartilages and serosa is far more important than the purulent exudation into the joint. For the former single or multiple incisions into the joint with evacuation of exudate and drainage by tube or gauze, yields very good results; in the latter he proposed that the suggestion of the Drs. Mays, for such conditions of the knee-joint, viz.: wide incision of the joint with partial dislocation of the bones, and dry gauze tamponade of the joint, with dressing in the dislocated position be applied to the other large joints. He had employed this method in three very severe cases of suppurative goneitis, with excellent results; and he felt assured that results equally satisfactory will follow the application to the other large joints. The technic of the operation for the knee and other joints was minutely described.

Dr. V. P. Gibney spoke of the interesting array of surgical facts presented by Dr. Berg and thought that the recognition of bone lesion by the earliest symptom, effusion into the joint, was a well-chosen point. In tuberculous arthritis of the knee, effusion into the joint is a well recognized symptom before the bone symptoms appear. He thought these cases were often mistaken for rheumatic and traumatic synovitis.

Dr. Elliott cited a case under his observation. The patient, a woman thirty-nine years old, had seven years ago, run a needle into her finger. The acute symptoms readily subsided. There were no more symptoms for six months at which time she became edematous and had pains in different parts of the body. The face, legs and arms became swollen and symptoms of general septicemia set in. The case was diagnosticated as neuritis in one of our large hospitals. The pain gradually subsided with evidence of a multiple arthritis involving the elbows, knees, shoulders, ankles and hips. The difficulty lasted about eight months and subsided leaving the knees anchylosed. In six months two popliteal abscesses formed and a quantity of pus was removed. When seen six months ago the legs were in contracture beyond a right angle. He had straightened the legs by brisement force. Dr. Elliott considered the interesting features of this case to be (1) that symptoms did not appear till six months after the trauma; (2) mistaking the case for one of neuritis, and (3) the faulty treatment in allowing the limbs to become contracted. The patient will in time be able to walk. He wished to ask Dr. Berg what was his opinion of the pathology of the joint lesion, as there was no pus in the joints and no known lesion in the ends of the bones.

Dr. Berg said he had seen such abscess formation after an osteo-periostitis. He stated that he was glad to learn that some chronic forms of joint lesion are attended with effusion in the early stages. He thought there was a great lack of knowledge among general practitioners concerning joint diseases as witnessed by the number of suppurative cases in the hospitals. He thought the type of sepsis after osteomyelitis was exceptionally rapid in its course.

THE NEW YORK ACADEMY OF MEDICINE.

SECTION ON GENERAL MEDICINE.

Regular Monthly Meeting held Tuesday, December 16, 1902.

The Chairman, James K. Crook, M.D., in the Chair.

THE scientific business of the evening was opened by a paper read by Dr. Edward Franklin Smith, containing a brief review of some of the etiological factors in intestinal digestion. Dr. Smith discussed the various pathological conditions that enter into the causation of intestinal indigestion from the failure of proper digestion in the stomach to the presence of the several forms of intestinal parasites whose irritation interferes with the digestive function. His paper will appear in full in a subsequent issue of the MEDICAL NEWS.

Intestinal Indigestion and Renal Disease.—Dr. Leonard Weber detailed a series of cases in which the relations between the absorption of imperfectly digested substances from the digestive tract to arterial degeneration and renal disease were illustrated.

The first case was a man of middle life with no special liability to worry, who did not speculate, preferring, as he said, always to buy outright any stocks he desired to hold for profit. For some years he had suffered from chronic constipation and was bothered by frequent distention of the stomach. At times he suffered considerable inconvenience from hemorrhoids which did not bleed to the extent to cause any serious inconvenience.

Relief of Symptoms.—Under proper diet, certain simple drugs, massage of the abdominal muscles, careful applications of electricity and simple pills of aloin, the constipation improved and with it the general condition, while most of the symptoms of discomfort disappeared. This relief of symptoms continued for some time and then the urine became more abundant than before, this being especially noticeable at night, so that the patient had to get up several times to urinate. Besides the increase in quantity there was a decrease in the specific gravity of the urine and albumin could be detected in most of the specimens by ordinary tests. It was evident that interstitial nephritis had commenced and after a time a general arterio-sclerosis was noted and continued to advance notwithstanding the exercise of the greatest care with regard to the dietary and living regulations. The man died of cerebral hemiplegia at the age of sixty-three. The second patient, of whom Dr. Weber spoke, was the only one of his family who lived beyond sixty. He took spirits in moderate amount, but denied venereal history and all excesses. He smoked to a considerable extent and as he was suffering from an acute bronchial catarrh, he was advised to give up smoking which he promised to do but did not. In 1885 his urine was good, having been examined by the medical examiner of a life insurance company, but three years later, in 1888, it was increased beyond the normal in amount and was of low specific gravity. His chronic intestinal dyspepsia had continued for many years, and it seems evident, was the causal factor in the production of the kidney changes, for he was now evidently suffering from chronic interstitial nephritis. In the third case a man of fifty had suffered for many years from intestinal disturbance with alternate constipation and tendencies to diarrhea. When he first came under treatment his bowels were rather loose and there was considerable flatulence. He used wine and beer to an immoderate extent and tobacco more than was good for him. For a time he gave up his bad habits in these matters and improved somewhat in health. His symptoms recurred and became worse and he became quite emaciated. Three years afterwards he died having suffered all the symptoms of advanced kidney disease, apparently brought on by the toxemia induced by intestinal dyspepsia.

Intestinal Toxins and Nephritis.—It would not be surprising to find that toxic substances, absorbed from the digestive tract, might cause irritative inflammatory disturbances of the kidneys. Investigators in children's diseases have pointed out that acute cholera infantum is very frequently complicated by acute nephritis and that the fatal termination of the disease is not infrequently a uremic coma. It is not too much to conclude, therefore, that chronic nephritis might be caused by the presence of somewhat less virulent tox-

ins in the circulation, whose irritation had been continued for a longer time.

Increase of Nephritis.—There is no doubt in the minds of most physicians of large experience that nephritis is much more common at the present time than it was a few years ago. Many reasons have been advanced for this. The best one seems to be that the greater prevalence of good living has been followed by much disturbance of the intestinal tract and as a consequence by the absorption of irritating materials that have to be eliminated by the kidneys with inflammatory results. There is no doubt that the beginning of chronic nephritis is not infrequently an infectious disease. Infectious diseases are rarer than they used to be. When individuals have had a serious infectious disease in childhood, however, which has somewhat impaired their renal eliminative powers the presence of intestinal toxins in the circulation later in life is sure to be followed by very serious kidney disturbance.

Treatment of Chronic Nephritis.—Dr. Weber agrees with the French school of therapeutics who insist on the value of small doses of potassium iodide, even in advanced chronic nephritis. In some cases the drug does good because there is a syphilitic element in the case which makes the kidney condition worse. The usual dose employed however is only five grains of the iodide three times a day and this would not of itself suffice to affect syphilitic lesions to any extent. If syphilis is known to be present and if it is suspected of being an important factor in the production of changes in the kidneys then much larger doses of the drug should be employed. At least 30 grains to a dram three times a day. The small doses prove, however, of great service in the treatment of non-specific nephritis. Professor Vierordt after very careful investigation of the question of the action of potassium iodide in these cases, an investigation which he began with the idea that he would prove it to be of no service, says that there can not be the slightest doubt of the benefit derived from these small repeated doses of potassium iodide. The effect of the drug is to lessen the tendency to the formation of connective tissue in the kidney, to lead to the reabsorption of incompletely formed connective tissue and to dissolve broken down material from the system that is proving a source of irritation and neutralize its toxic effect upon the kidney substance. Besides this it serves to soften the arteries and so makes the general circulation better and consequently also the circulation for the kidneys.

True Auto-Intoxication.—The absorption of toxic material from the intestines is often spoken of as autotoxemia. As a matter of fact, however, the intestines are outside of the body proper and so it can not be properly spoken of as a self-poisoning. There is, however, a true autotoxemia due to the production of substances in the tissues themselves that are toxic for other parts of the organism. Such autotoxins occur quite abundantly in certain constitutional diseases, notably gout and affections due to the uric acid diathesis. In diabetes also, especially that form known as pancreatic diabetes and in which diabetic coma is so liable to assert itself, there is a distinct tendency to the production of poisonous substances as a result of errors of metabolism. Uremic coma is a manifestation of the same kind being due to something much more serious than the mere prevention of elimination through the kidneys.

Autotoxemia and Ductless Glands.—These true autotoxemias are especially likely to occur in connection with pathological conditions of the ductless glands. In Graves' disease for instance, or in Addison's disease, their effects on the general system are readily seen. Myxedema and its symptoms are due to errors of metabolism caused by deficiency of the secretion of the thyroid glands. Von Noorden has expressed the opinion that the ovaries have an internal secretion as well as the pancreas and that obstinate cases of chlorosis in young women are usually due to absence or deficiency of the internal function of the ovaries. Blum, a careful investigator, showed experimentally that the removal of the thyroid gland from animals was followed by death after some months from chronic interstitial nephritis. The reason for this is evidently the attempt of the kidney to eliminate certain substances, which are normally neutralized in the system by the secretion of the thyroid gland.

Dr. Weber is of the opinion then that nephritis is not infrequently due to the excretion of poisons manufactured within the system as well as those which are absorbed from the digestive tract at times when normal digestive processes are disturbed. At the same time there is not infrequently a development of arterio-sclerosis, which by interfering with the circulation acts as a vicious circle in causing further deterioration of the kidney condition.

Diagnosis of Intestinal Indigestion.—Dr. John C. Hemmeter, of Baltimore, then read a paper on the treatment of intestinal digestion with preliminary remarks on its diagnosis. This paper will appear in a subsequent issue of the MEDICAL NEWS. By request of the Chairman, Dr. Hemmeter prefaced his remarks by some hints as to the various forms of intestinal indigestion and their differentiation. The important consideration, he said, with regard to all affections of the digestive tract is "Are they due to some structural change, or are they only functional or chemical disturbances of digestive processes, the architecture of the intestinal wall remaining unaltered?" He said that the subject of intestinal indigestion in general has not been treated by the great authorities on the subject of diseases of the intestines, because under various forms it was discusesd in the different chapters of special diseases of the intestines.

Factors for Diagnosis.—The diagnosis of the various phases of intestinal indigestion will never be complete until we know much more than at present about the two factors that would provide a proper basis for our knowledge. These are the food that is taken and its value and the feces that are excreted after the taking of that food. Without a good knowledge of these two elements our information as to the cause and course of intestinal indigestion must be imperfect. The feces are especially important. So far there has been a decided objection on the part of very many practitioners to the careful investigation of the chemistry of feces. As a matter of fact with modern facilities and technic, the investigation of feces is not offensive. Certainly not more than the bacteriological examination of tuberculous sputum, nor necessarily any more deterrent than the proper examination of the urine. Dr. Hemmeter said that the term intestinal dyspepsia is a misnomer. Dyspepsia being a condition of gastric indigestion has the true etymological significance of failure of peptic digestion. Needless to say, however, peptic digestion has no place in the intestines and therefore to talk of intestinal dyspepsia is more or less absurd. Dystrypsia is a better term, since it is usually the digestive ferment from the pancreas that is morbidly altered or absent in cases of so-called intestinal indigestion.

Foods in the Etiology of Indigestion.—Dr. W. W. Van Valzah said in opening the discussion that one of the main causes of indigestion of any form must be looked for from the standpoint of the foods consumed. Flesh, starch and fat or accessory food materials are very differently digested by different individuals. When there is difficulty in the digestion of albumin this is followed by the appearance of indican in the urine. Undoubtedly Dr. Weber's claim of the connection between

chronic indigestion and chronic nephritis is supported by the experience of stomach specialists who find that irritant substances get into the urine during the course of indigestion. The method of examining the stools by finding the amount of fermentation of which they are capable is of value as indicating that undigested starch is present and as is well known, this may cause a tendency to diarrhea. When fats appear in the stools it is not unusual to find that there is also some passive congestion of the liver; the appearance of the fats being due either to the consumption of too much fat which reacts upon the liver circulation, causing it to stagnate, or hepatic congestion for some other reason causes absence of the fatsplitting ferments and emulsifying properties of the bile and so hampers the proper digestion of fat.

Dr. Van Valzah considers that not a little of the difficulty of the digestion of starches and cereals could be overcome by more thorough cooking than is at present the custom. Patients who can not eat potatoes after ordinary cooking, are often able to digest them very readily if they are doubly cooked before being served, that is, after having been boiled they are baked before being served. The cereals are fortunately becoming rather a favorite article of diet but need to be cooked much more than is at present the custom. As a rule they should be allowed to simmer all night and then thoroughly cooked for a half hour in the morning before being eaten. Some of the cereals that are being put on the market have the advantage of being very thoroughly cooked before being packed for sale.

Harmful and Beneficial Drugs.—There is no doubt that many drugs ordinarily prescribed for digestive disturbances do more harm than good. The so-called intestinal antiseptics besides preventing the growth of bacteria, also prevent the fermentative processes of true digestion. The best intestinal antiseptic in Dr. Van Valzah's opinion is calomel. This should be given in small doses, as one-fortieth of a grain, one to four times every day. If it has a tendency to hurry food through the intestines, smaller doses should be employed. Some patients will stand, however, one-twentieth of a grain several times a day. If patients are sensitive to calomel, the protiodide of mercury should be used. This drug does not produce irritation and can be used with confidence. Ichthyol is another very useful drug, and should be given about four drops—one to four times a day on an empty stomach. It will prevent many disturbing fermentative and putrefactive processes that have proved annoying for long periods. As men and women grow older they must be taught and advised and finally ordered so to change their lives as to give themselves some surcease from the anxiety of younger years. Men are apt to go on accumulating more and more responsibilities. Their work must be limited, they must be taught to take proper recreation, they must be made to see the necessities for outdoor air and sufficient exercise. It has been well said that the doctor's success in treating chronic intestinal indigestion depends quite as much on his treatment of the patient from the chin up as from the chin down. The doctor must assert his will power and if necessary bulldoze the patient into seeing the necessity for relieving himself of some of his more serious responsibilities.

Psychical Influences and Reflex Secretion.—Dr. Morris Manges said that the influence of the psychical secretion of gastric juice which has been shown experimentally to occur by Pawlow can not be overestimated. We have no explanation of it, but its existence is well understood and has of course been realized even before its experimental demonstration. Certain foods make the mouth water. On the other hand it must not be forgotten that the act of chewing has a reflex influence on the secretion of gastric juice. The amount of chewing done influences somewhat the amount of the secretion. People who fail to chew not only fail to mix the saliva properly with their food, but fail to send up the impulses to higher centers, which act reflexly in producing gastric secretion. It must not be forgotten that in merely nervous conditions, there may be such wide variations in gastric secretion as to give achylia, or heterochylia or hyperchlorhydria and hypochlorhydria within a few hours, or within a few days of each other. Some idea of the obscurity in which the subject of intestinal indigestion is as yet wrapped can be gathered from the fact that we are not sure whether peristalsis and its pathological conditions may not be more important in the production of intestinal dyspepsia than are secretory disturbances. Food moves too slowly and is subject to fermentations that could not otherwise occur, or is hurried along too rapidly and fails of proper absorption, or fails to be mixed with certain secretions that produce definite changes and prevent accessory fermentative processes. There is a whole school of specialists on digestive diseases who have come to realize the importance of motor disturbances in these matters.

Intestinal Indigestion and Nephritis.—Dr. Manges considers that intestinal indigestion is frequently the source of nephritis. The presence of the irritant substances in the blood also gives rise to arterio-sclerosis. The best proof that such toxic material may readily find its way into the blood is found in the fact that bacteria occur in the urine where the lesions, as in typhoid fever, are localized in the intestinal tract. Bacteriuria may exist for a long time after typhoid fever. On the other hand, where bacteria have been found in the urine with no explanation for their origin and when all other means of causing them to disappear have been tried in vain, they have disappeared after irrigation of the rectum.

Intestinal Dyspepsia.—Dr. Max Einhorn said that intestinal dyspepsia is not an unsuitable term. Dyspepsia, from the Greek, means bad digestion. The original verb peptein in Greek meant to digest, as a general process, originally to boil as if the digestion within the body resembled the solution of substances in water by boiling. Only later did pepsin come to be limited to the digestive ferments secreted by the stomach walls. One might talk with perfect propriety then of intestinal dyspepsia. On the other hand, the word dystrypsia, suggested by Dr. Hemmeter, is not very suitable, since intestinal digestion is not all accomplished by the trypsin of the pancreas. There are many other ferments. With regard to intestinal indigestion, Dr. Einhorn considers that one of the most important factors to be considered is the disturbance of stomach digestion. If food comes to the intestine improperly prepared it will cause disturbance of the intestinal digestive processes.

Usefulness of Intestinal Disinfectants.—Dr. Beverly Robinson said that while many intestinal disinfectants are undoubtedly harmful, it would be wrong to insist that all disinfectants are harmful and a mistake to do away with their use. There are at least three disinfectant substances that Dr. Robinson has found of excellent service. These are, first, charcoal, which is useful especially in offensive breath and eructations from the stomach; second, the insoluble salts of bismuth, which are not only antiseptic, but serve to allay irritation; the third is creosote, given in small doses is an efficient intestinal antiseptic. In large doses it often does harm. Calomel is also an excellent intestinal antiseptic. Common sense must be used in the employment of these remedies. They will not, of course, completely overcome fermentative and putrefactive processes. We need not expect to distil eau de cologne from the intestinal contents, but we may do very much good.

Cooking and Indigestion.—Dr. Robinson is of the opinion that if more attention were paid to proper cooking there would be much less digestive disturbance. Bad cooks do much more harm than doctors can ever undo. It would be much better for the poor of our cities to have opportunities for learning the proper cooking of food, rather than opportunities to read the latest novel. The endowment of cooking schools will do much more for humanity than the endowment of libraries.

Etiological Factors of Intestinal Indigestion.—Dr. William H. Porter said that first there is too much food and often of improper kinds taken. Secondly, there is insufficient respiration because of lack of exercise, and third, there are nervous disturbances that inhibit secretion and make peristalsis irregular. The overeating and the eating of food that is for the individual indigestible is, of course, well recognized. Lack of respiration, however, with a consequent lack of oxidation, is not so often considered a factor in digestive disturbances. The system becomes overloaded with material that renders all function torpid and its elimination through the kidneys causes kidney irritation and finally chronic inflammatory changes. The overeating of starches and fats overcharges the system with hydrocarbons. These can only be used up by oxydizing processes within the body. If respiration is limited to that which takes place in sedentary occupations, they are not properly consumed. On the other hand, if much oxygen is used up in the oxidation of carbon, proteid material, which is even more dangerous, does not undergo proper changes and becomes irritant toxic material.

Dr. Hemmeter, in closing the discussion, said that he was glad to have brought out so many views. If his paper should suggest the necessity for more careful information with regard to details of diet and the need of more diligent investigation of the feces then he would feel that his best wishes were accomplished.

BOOK REVIEWS.

A MANUAL OF MEDICINE. Edited by W. H. ALLCHIN, M.D., Lond., F.R.C.P., F.R.S.Ed., Senior Physician and Lecturer on Clinical Medicine, Westminster Hospital, etc. Vol. IV. DISEASES OF THE RESPIRATORY AND OF THE CIRCULATORY SYSTEMS. The Macmillan Company, New York.

THE present volume is well up to the high standard set by preceding volumes of Allchin's Manual. It constitutes an excellent handbook of really handy size on the important departments of diseases of the respiratory and of the circulatory systems. The article on pulmonary tuberculosis in the present volume seems to deserve special mention because of its conciseness and its completeness and the many practical hints for treatment. All of the modern suggestions as to the therapeutics of consumption are discussed and their value very succinctly and clearly stated. The use of tuberculin as a diagnostic agent receives a page of notice, that considering the present trend of feeling with regard to the use of this material seems scarcely justified.

The chapters on the heart are very well put and constitute an excellent compendium of a difficult subject. Allchin's volumes very well reserve a place in the library of the busy practitioner for they present subjects in the way that makes them very readily consulted in the few minutes that a busy man may have to spare to look up an especially difficult case.

The defect that is apt to be noticeable in most works from many hands is not entirely lacking here. For instance we fail to find any suitable exposition of the subject of paroxysmal tachycardia, though this topic is surely of sufficient importance to justify it. It would seem to have been more or less lost sight of.

THE TREATMENT OF TABETIC ATAXIA BY MEANS OF SYSTEMATIC EXERCISE. By Dr. H. S. FRENKEL, Medical Superintendent of the Sanatorium "Freihof" in Heiden (Switzerland). Translated and Edited by L. FREYBERGER, M.D. P. Blakiston's Son & Co., Philadelphia.

THE Frenkel treatment of tabes dorsalis has been a household possession of the neurologists for many years. We are glad to welcome this translation that will place the general practitioner in the position to carry out systematically a series of procedures that without cavil have been demonstrated to be of supreme importance in the treatment of this condition.

Of the principle laid down in the treatment there is little to say. It has come to stay and there is little doubt but that its failures have been largely due to lack of careful and thorough technic.

It is particularly fortunate, therefore, that this work as presented should take up this subject of technic so fully and comprehensively. We have rarely seen a work so exhaustively and intelligently illustrated. Every step in the process of muscle training is taken up and illustrated by excellent halftone reproductions. Practically nothing is left to the imagination—the whole series of processes are reproduced so that the beginner may learn.

A careful and full discussion of muscular coordination precedes the chapters on treatment; thus from the theoretical, practical, and illustrative features the work is complete.

THE DISEASES OF THE NOSE, THROAT, AND EAR. By CHARLES PREVOST GRAYSON, A.M., M.D., Lecturer on Laryngology and Rhinology in the Medical Department of the University of Pennsylvania; Physician-in-charge of the Department for Diseases of the Nose and Throat in the Hospital of the University of Pennsylvania; Laryngologist and Otologist to the Philadelphia Hospital. Lea Brothers & Co., Philadelphia and New York.

IN the first place, from the publishers' standpoint, type, leading, paper, illustrations, etc., this book is exquisite in its make-up. The author's preface well declares the character of the book and we take no exception to the claim there made that "it is the rhinologist who holds the key to the prophylaxis of the ear," *i.e.*, all other things being equal.

As to the subject-matter, the author has not erred in giving a too wordy treatment of any subject; he has succeeded admirably in being brief, without being as a rule too brief, giving all important subjects due consideration. There is no cramped use of stilted English, yet this is clearly not a book of reference, though it aims at being complete in itself. We think the author has treated some subjects very scantily, *e.g.*, the supremely important sinus diseases of the nose. What is given is good, but it leaves much unsaid, except for students only, who cannot compass any subject thoroughly, in the very nature of things. We are forced to say that this is in the main a teacher's text-book to students. It is the text of his particular method, in helpful detail of treatment that enhances its value to them. It is written with great carefulness and beauty of diction.

The author has striven to do well what was embraced within his plan, and we accord him praise

for having done it. He teaches little that is new, but he is a safe and helpful teacher and gives warnings against gross, unscientific and harmful methods of practice. For example, he condemns the too prevalent use of the galvanocautery, which is commendable. On the other hand, he admits to commendation the treatment by electrolysis in chronic catarrhal otitis media though this treatment is yet only in an experimental stage.

A minor point in pathology we notice in which the author perpetuates the errors of his predecessors, viz.: the classification of nasal polypi as myomata. We quote with hearty approval, "In treatment it is desirable that we have a well-defined idea of what we wish to accomplish:" and, "There is no mystery about the success that comes of being thorough, nor is there anything surprising in the inevitable failure that attends carelessness."

TEXT-BOOK OF ANATOMY. By American Authors. Edited by FREDERIC HENRY GERRISH, M.D., Professor of Anatomy in the Medical School of Maine, Bowdoin College. Second Edition. Lea Brothers & Co., Philadelphia and New York.

THESE authors have been Arthur Dean Bevan, of Rush Medical College, who has described the Arteries; J. P. McMurrich, of the University of Michigan, who has written the chapter on Embryology; William Keiller, of the University of Texas, who has contributed the chapters on the Nerves, the Skin, the Nose, and the Eye; George David Stewart of the University and Bellevue Medical College, who takes up the Organs of Generation; George Woolsey of Cornell Medical College, who contributes the Bones, the Articulations and the Veins, and F. H. Gerrish, who writes the major portion of the volume, describing the Elementary tissues, the Muscles, the Fasciæ, the Heart, the Lymphatic System, the Cerebro-spinal Axis, the Tongue, the Ear, the Organs of Digestion, the Organs of Respiration, the Urinary System, the Ductless Glands, and Relational and Practical Anatomy.

The present volume comes a trifle short of 1,000 pages and the reviewer is heartily glad that his student days are over and that he does not have to learn the contents of these pages. At the same time there is regret mingled with the joy in that he did not have such an excellent text-book to study and should Quixotism rule the day it may see him plodding at this volume, which by its very interest almost compels one to go back to the pursuits of the first year at medical college.

While it is doubtful whether the ancient generations will ever lose their veneration and regard for the dissecting-room-stained "Gray" this new anatomy by many authors bids fair to occupy a similar place in the regard of the present-day student.

Its illustrative features, largely adapted from that Continental classic Testut, are beyond comparison and the text is accurate and yet as concise as modern anatomical research will permit. Gerrish's Anatomy has certainly won for itself a place of high rank on its merits.

PHYSICIAN'S VISITING LIST (Lindsay & Blakiston's). For 1903. P. Blakiston's Son & Co., Philadelphia.

THIS neat and compact little book, now in its fifty-second year, offers to the practitioner excellent facilities for recording in a simple manner the usual memoranda relating to his routine duties. The book is bound in flexible leather, suitable for the pocket, and in addition to blank pages to be devoted to records of visits, accounts, etc., contains also a complete table of dosage, a chapter on incompatibility, system of measures and weights, signs of death, list of poisons and antidotes, and a table for converting English and metric systems.

PATHOLOGIE UND THERAPIE DER HERZNEUROSEN UND DER FUNCTIONELLEN KREISLAUFSTÖRUNGEN. Von Dr. AUGUST HOFFMANN in Düsseldorf. J. F. Bergmann, Wiesbaden. G. E. Stechert, New York.

Heart neuroses have always interested the masters of medicine both because of their intrinsic importance and because of the difficulties surrounding their diagnosis. To distinguish between a neurosis and a functional disturbance of the heart-muscle, or to decide when a long-standing neurosis has passed into a muscular affection, is often among the most difficult of clinical problems. A fair number of persons exhibiting functional disturbances reach a stage where objective signs of changes in the heart itself seem clear, yet of these some become worse and exhibit the symptoms of lack of compensation, others remain in a stationary condition, and still others improve and eventually reach a normal condition again. The question then arises: "Is the impaired heart-action functional or organic?"

It is the plan of this book to describe those diseases of the circulatory organs which run their course without demonstrable pathological changes in the valves, the musculature, or the blood-vessels; it being recognized, however, that a diseased heart may exhibit functional disturbances which are not dependent upon the heart lesion. The author has done his work well, and has presented us with an array of facts and theories which show great knowledge and careful thought. The work, therefore, may be welcomed as a valuable contribution to cardiac literature.

The subject-matter is divided into two sections, the first covering anatomy, physiology, methods of research, and the symptoms, physical signs, prognosis and treatment of the pure neuroses, including bradycardia, tachycardia and arrythmia. The second part deals with the functional disturbances of the heart dependent on disease of other organs, poisons, fever, constitutional diseases, organic and functional nervous diseases, Graves' disease, the Adams-Stokes syndrome, Raynaud's disease, erythromelalgia, etc.

A comprehensive bibliography accompanies each chapter, and a fair index renders the great mass of material readily accessible.

BOOKS RECEIVED.

The MEDICAL NEWS *acknowledges the receipt of the following new publications. Reviews of those possessing special interest for the readers of the* MEDICAL NEWS *will shortly appear.*

ANNUAL REPORT, DEPARTMENT OF HEALTH, CITY OF NEW YORK. 1897-1901. New York.

MEDICAL MICROSCOPY. By Dr. T. E. Oertel. 8vo, 362 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia.

REGIONAL MINOR SURGERY. By Dr. G. G. Van Schaick. 12mo, 226 pages. Illustrated. The International Journal of Surgery Co., New York.

MALARIAL FEVER. Its Cause; Prevention and Treatment. By Dr. Ronald Ross. Ninth Edition. 8vo, 68 pages. Longmans, Green & Co. New York.

PRACTICAL ANATOMY. A Manual of Dissection. Edited by J. E. Lane. Ninth Edition, 8vo, 696 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia.